SUPPLY, CONSTRUCTION, OPERATIONS AND MAINTENANCE AGREEMENT

BY AND BETWEEN

SINDH MASS TRANSIT AUTHORITY
(AS EMPLOYER)

AND

NATIONAL RADIO & TELECOMMUNICATION CORPORATION
(AS COMPANY)

RELATING TO:

SUPPLY, CONSTRUCTION, OPERATIONS AND MAINTENANCE OF BUSES FOR THE SINDH INTRA DISTRICT PEOPLES BUS SERVICE PROJECT IN SINDH, PAKISTAN

DATED: AS OF 27 OF OCT, 2021

Employer's Initials

National Radio Telecommunication Corporation
HARIPUR PAKISTAN

Company's Initials

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CERTIFICATE
Certified u/s 10 of the Stamp Act 1899
that Stamp duty of Rs =23,561,038/-
has been recovered vide Challan
No = Nil = dt 27-10-2021
Challan verified by Treasury Officer Karachi
29-11-2021

Deputy Chief Inspector of Stamps Board of Revenue Sindh Karachi

SUPPLY, CONSTRUCTION, OPERATIONS AND MAINTENANCE AGREEMENT

This **SUPPLY, CONSTRUCTION, OPERATIONS AND MAINTENANCE AGREEMENT** (this **"Agreement"**) is made on this 27 day of Oct, 2021,

BETWEEN

(1) **SINDH MASS TRANSIT AUTHORITY**, a statutory body constituted pursuant to Section 4 of the SMTA Act with its office located at [●], Pakistan (the **"Employer"**, which expression shall include its successors-in-interest and permitted assigns);

AND

(2) **NATIONAL RADIO AND TELECOMMUNICATION CORPORATION**, a company incorporated under the laws of Pakistan, with its registered office located at T&T Complex, Haripur, Khyber Pakhtunkhwa, Pakistan (the **"Company"**, which expression shall include its successors-in-interest and permitted assigns).

(Each of the Employer and the Company is hereinafter, individually referred to as a **"Party"** and collectively referred to as the **"Parties"**).

RECITALS

WHEREAS:

(A) The Employer, in discharge of its functions under the SMTA Act, intends to implement an integrated bus operations project by establishing a network of public transport routes in various cities in the Province of Sindh to meet increasing demands for urban transport and contribute towards development of a sustainable transport system.

(B) The Employer wishes to conclude an agreement with the Company for the performance of the Company's Obligations in respect of the Project.

(C) The Parties desire to set forth the terms and conditions under which the Company shall perform, and the Employer shall pay, for the Company's Obligations.

NOW, THEREFORE, in consideration of the mutual promises and agreements contained herein, the Parties hereby agree as follows:

1. DEFINITIONS AND INTERPRETATION

1.1. DEFINITIONS

The terms used in this Agreement shall have the meanings stated below:

"**Acceptable International Credit Rating**" means, with respect to a person or the unsecured, unguaranteed and unsubordinated instruments issued by such person, an international rating of A- or higher by S&P, A3 or higher by Moody's or A- or higher by Fitch, provided that, where a person or any instrument is rated by more than one of S&P, Moody's or Fitch, then the lowest rating will apply for determining whether the person or instrument has an Acceptable International Credit Rating.

"**Acceptable Pakistan Credit Rating**" means, with respect to a person or the instruments issued by such person:

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(a) in relation to such a person, that is rated AA+ or higher by PACRA or AA+ or higher by VIS; and

(b) in relation to such an instrument, that it is rated AA+ or higher by PACRA or AA+ or higher by VIS,

provided that where a person or any instrument is rated by more than one of PACRA or VIS, as applicable, then the lowest rating will apply for determining whether the person or instrument has an Acceptable Pakistan Credit Rating.

"Actual Fuel Price" means the weighted average fuel price (PKR/litre) at the end of each month of the Operating Year as calculated in accordance with Schedule V (*Fuel Price Indexation*).

"**Advance Payment**" means the advance payment of the Supply Cost to be made by the Employer pursuant to Section 8.1 (*Advance Payment*) in an amount equivalent to fifty percent (50%) of the Supply Cost.

"**Advance Payment Security**" means an irrevocable, unconditional and on-demand bank guarantee, denominated and payable in PKR, having a Minimum Credit Rating at all times, in an amount equal to the Advance Payment, issued by a bank, having a Minimum Credit Rating at all times, in each case acceptable to the Employer, in the form set out in **Schedule C (*Form of Advance Payment Security*)**.

"**Advance Payment Security Original Expiry Date**" has the meaning given to that term in Section 9.1.2.

"**Agreement**" means this Supply, Construction, Operations and Maintenance Agreement including all Schedules, exhibits and annexes included herein.

"**Applicable Laws**" means the federal, provincial and local laws of Pakistan and laws of any other relevant jurisdiction, and all orders, rules, regulations, executive orders, statutory regulatory orders, decrees, judicial decisions, notifications, or other similar directives issued by any competent entity pursuant thereto, as any of them may be amended from time to time.

"**Applicable Standards**" mean the standards, requirements and criterion applicable to the performance of the Company's Obligations as contained in:

(a) the Applicable Laws;

(b) the Employer's Requirements;

(c) the Approved Detailed Bus Design for the Prototype Buses;

(d) the Approved Final Bus Design for the Production Buses;

(e) the Construction and Design Requirements;

(f) the O&M Plan;

(g) the O&M Manuals;

(h) the Prudent Industry Practices; and

(i) the Consents,

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provided however, in the event of any discrepancy, conflict or inconsistencies in the standards, requirements and criterion set out above, the most stringent standards, requirements and criterion shall apply.

"**Approved Concept Bus Design**" has the meaning given to that term in Section 5.2.2.

"**Approved Detailed Bus Design**" has the meaning given to that term in Section 5.3.2(a).

"**Approved Final Bus Design**" has the meaning given to that term in Section 5.5.2(a).

"**Arbitration Act**" means the Pakistan Arbitration Act, 1940 (as may be amended, modified, supplemented, extended or re-enacted from time to time).

"**Base Exchange Rate**" means USD/PKR Telegraphic Transfer and Overdraft (TT&OD) composite (selling) exchange rate notified/published by State Bank of Pakistan (SBP) on the Effective Date.

"**Base Fuel Price**" means PKR 122/- (Pakistani Rupees One Hundred Twenty Two only)/- per litre.

"**Batch of Goods Phase I**" means shipment of Supply during Phase I in accordance with the Schedule of Delivery to be delivered on or before the Scheduled Commencement Date Phase I.

"**Batch of Goods Phase II**" means shipment of Supply during Phase II in accordance with the Schedule of Delivery to be delivered on or before the Scheduled Commencement Date Phase II.

"**Batch of Goods**" means, as applicable, the Batch of Goods Phase I and/or the Batch of Goods Phase II.

"**Benchmark O&M Fee**" means the yearly benchmark O&M fee for each Operating Year as set out in **Schedule N** ***(Benchmark O&M Fee)***.

"**Bus**" or "**Buses**" means the Prototype Buses and the Production Buses being supplied by the Company through the Sub-Supplier for the purposes of the Project, meeting the specifications set out in **Schedule A** ***(Company's Scope of Work and Employer's Requirements)***.

"**Bus Battery and Structure**" means the battery packs and electric motors, to be installed in the Buses and the outer physical structure of the Buses each as further described in the Employer's Requirements.

"**Bus Battery and Structure Warranty Obligations**" means, during the Bus Battery and Structure Warranty Period, warranty obligations of the Company in relation to the Bus Battery and Structure, including, remedying of Defect or Deficiencies, in each case, in accordance with the Applicable Standards and the timelines stated in this Agreement.

"**Bus Battery and Structure Warranty Period**" means the period for notifying Defect or Deficiencies in the Bus Battery and Structure of any of the Buses which period shall commence from their respective Delivery Completion Date and end on the date that is the earlier of: (i) twelve (12) years after the Delivery Completion Date Phase II (subject to any extension under Section 12.4 *(Extended Warranty)*; or (ii) after the relevant Bus has run 1.2 million kilometers of service.

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"**Bus Depots**" means the bus depots to be constructed by the Company on the immovable properties licensed by the Employer to the Company for utilisation as a depot for the Buses, together with such fixtures and fittings as described in **Schedule A** ***(Company's Scope of Work and Employer's Requirements)***.

"**Bus Stations**" means the bus stations to be constructed by the Company on the immovable properties licensed by the Employer to the Company for utilisation as stations for the Buses, together with such fixtures and fittings as described in **Schedule A** ***(Company's Scope of Work and Employer's Requirements)***.

"**Bus Supply and O&M Fees**" means collectively the Supply Cost and the O&M Fees.

"**Certificate of Compliance**" means the certificate of compliance to be issued respectively for the Batch of Goods Phase I and the Batch of Goods Phase II following inspection at the Delivery Point in accordance with Section 5.9.2(a).

"**Certificate of Rejection**" means the certificate of rejection that may be issued respectively for the Batch of Goods Phase I and the Batch of Goods Phase II following inspection at the Delivery Point in accordance with Section 5.9.2(b).

"**Change in Complete Control**" means any issuance, sale, transfer, conveyance, disposal or any event, transaction, arrangement, Encumbrance or agreement of any nature that results in or may result in the Company(s) holding less than one hundred percent (100%) of the Shares and/or losing the power to direct the management, policies, control and/or decisions, in each case, of the Company.

"**Commencement Date Phase I**" has the meaning given to that term in Section 2.3.1.

"**Commencement Date Phase II**" has the meaning given to that term in Section 2.3.1.

"**Company**" means the entity/entities identified as "Company" incorporated under the laws of Pakistan as defined in the preamble and its legal successors and permitted assigns.

"**Company Equipment**" has the meaning given to that term in Section 7.8.1.

"**Company Security(ies)**" means the Advance Payment Security, the Warranty Bond, Maintenance Performance Guarantee and the Performance Security.

"**Company Taxes**" means and includes all taxes, levy, cess, duties and fees (other than Employer Taxes) including taxes on income of the Company and all other taxes, duties and charges, in each case, that may be applicable on the Company (including its Sub-Contractors, Sub-Supplier or its O&M Personnel) or in respect of the Company's Obligations, (including any associated custom and import duties for clearance of imported Goods, equipment etc. from the port in Sub-Supplier's country), provided, however, the aforesaid taxes in each case shall be deemed to be included in the Bus Supply and O&M Fees.

"**Company's Approval Request**" has the meaning given to the term in Section 7.5.2.

"**Company Payment Account**" means the Pakistani Rupee denominated account to be established by the Company, in which the Payable Amount and any other sums specified in the Independent Expert Certificate shall be credited in terms of this Agreement and details of which shall be Notified in writing by the Company.

"**Company's Personnel**" means the Company's Representative(s), employees, all personnel including staff, labour of the Company, the Sub-Supplier and Sub-Contractor

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and any other personnel assisting the Company in the execution of the Company's Obligations.

"**Company's Obligations**" means the obligations to be performed and undertaken by the Company in terms of this Agreement and include: (a) the Supply Obligations; (b) the Construction Works; and (b) the O&M Services.

"**Company's Representative**" has the meaning given to that term in Section 4.6.1.

"**Concept Bus Design**" has the meaning given to that term in Section 5.2.1.

"**Confidential Information**" means all information, documentation, data, know-how or trade secrets, of whatever nature relating to the Project, disclosed by one Party to the other Party in accordance with Section 13 (*Confidential Information*).

"**Consents**" means all such approvals, consents, authorizations, notifications, concessions, acknowledgements, licenses, permits, or similar items that is or are required to be, from time to time, obtained and/or maintained by the Company for the performance of its obligations under this Agreement, including the consents stated in **Schedule L (*Consents*)**.

"**Construction Completion Certificate**" means the certificate to be issued to the Company by the Employer confirming that Construction Works have been completed in accordance with the Applicable Standards.

"**Construction Completion Date Phase I**" means the date of issuance of the Construction Completion Certificate for Phase I.

"**Construction Completion Date Phase II**" means the date of issuance of the Construction Completion Certificate for Phase II.

"**Construction Document(s)**" means each of the Detailed Engineering Design and the Construction Drawings.

"**Construction Drawings**" means the drawings, designs, calculations and documents prepared and/or to be prepared by the Company pursuant to the Applicable Standards, as amended from time to time by the Company in accordance with the terms of this Agreement with the approval of the Independent Expert (in consultation with the Employer).

"**Construction Inspection**" has the meaning given to that term in Section 6.5.1.

"**Construction and Design Requirements**" means the requirements (as applicable) relating to the design and construction of the Bus Depots and Bus Stations, as set out in **Schedule A *(Company's Scope of Work and Employer's Requirements)***.

"**Construction Works**" means the works to be performed in respect of the construction of the Bus Depots and Bus Stations in accordance with the Applicable Standards.

"**Cost**" means all expenditure reasonably and properly incurred (or to be incurred) by the Company including overhead and similar charges and Loss of Revenue but does not include profit.

"**Covered Assets**" means the Goods, the Bus Stations and the Bus Depots, as specified in the Employer's Requirements.

"**Default Delay Period**" means, in relation to the Mobilization Period, the days (or part

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thereof) that lapse between: (a) the Scheduled Commencement Date Phase I and the Commencement Date Phase I; or (b) the Scheduled Commencement Date Phase II and the Commencement Date Phase II.

"Defective Goods" has the meaning given to that term in Section 5.9.2(b).

"**Defects or Deficiencies**" means any obligations forming part of Company's Obligations, that fail to conform to the Applicable Standards in any manner (including any services, performance, materials, design, execution, engineering and/ or workmanship in respect of such obligations and services); and any grammatical forms of such terms shall be construed accordingly.

"**Delay Liquidated Damages**" means the delay liquidated damages payable by the Company for delay in the achievement of the: (a) Commencement Date Phase I by the Scheduled Commencement Date Phase I; or (b) Commencement Date Phase II by the Scheduled Commencement Date Phase II, in accordance with Section 2.5 (*Delay Liquidated Damages During Mobilization Period*).

"**Delay Liquidated Damages Cap**" shall have the meaning ascribed thereto in Section 2.6.3.

"**Delivery Completion Certificate Phase I**" means the certificate to be issued to the Company by the Employer confirming delivery of the Batch of Goods Phase I to the Delivery Point in accordance with the Order and the requirements of this Agreement.

"**Delivery Completion Certificate Phase II**" means the certificate to be issued to the Company by the Employer confirming delivery of the Batch of Goods Phase II to the Delivery Point in accordance with the Order and the requirements of this Agreement.

"**Delivery Completion Date Phase I**" means the date of issuance of the Delivery Completion Certificate Phase I.

"**Delivery Completion Date Phase II**" means the date of issuance of the Delivery Completion Certificate Phase II.

"**Delivery Completion Date**" means, as applicable, the Delivery Completion Certificate Phase I and/or the Delivery Completion Date Phase II.

"**Delivery Point**" means the bus depots / spaces / areas / premises specified by the Employer in the Employer's Requirements for the delivery of the Goods.

"**Detailed Bus Design**" has the meaning given to that term in Section 5.3.1.

"**Detailed Engineering Design**" means the detailed engineering design for the Bus Depots and Bus Stations prepared by the Company in accordance with the Applicable Standards.

"**Dispute**" has the meaning given to that term in Section 21.1.1.

"**Dispatch Schedule**" has the meaning given to that term in Section 7.12.1.

"**Dispatch Schedule and Headway Targets**" means the schedule setting out the route and trip schedule for the Buses to be notified from time to time by the Employer (through the Operations Control Centre) in accordance with Section 7.11 *(Dispatch Schedule and Headway Targets)*.

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"**Dispatch Schedule and Headway Targets Change**" has the meaning given to that term in Section 7.11.1.

"**Drivers**" means individuals hired by the Company to drive and operate the Buses.

"**Effective Date**" means the date of signing of this Agreement.

"**Emergency**" means the occurrence of any event, that in the judgment of either Party requires immediate action and which constitutes, or is likely to constitute, a serious hazard to the safety of persons or property, or to the security, integrity, durability and reliability of the Covered Assets, or may materially interfere with the safe, prudent and/or environmentally sound operation of the Covered Assets or any part thereof.

"**Employer**" means the entity identified as "Employer" in the preamble and its legal successors and permitted assigns.

"**Employer Authority Matters**" has the meaning given to that term in Section 7.5.1.

"**Employer's Instructions**" has the meaning given to the term in Section 3.3 *(Employer's Instructions)*.

"**Employer's Personnel**" means the Employer's Representative and all other staff, labour, contractors, drivers, operators, agents, representatives, consultants and other employees personnel engaged by the Employer.

"**Employer's Representative**" has the meaning given to that term in Section 3.2.1.

"**Employer's Requirements**" means the requirements set out in **Schedule A** ***(Company's Scope of Work and Employer's Requirements)***, which specifies the purpose, scope, and/or other technical criteria including specifications for the Goods, O&M Services and other Company's Obligations.

"**Employer's Taxes**" means and includes all Pakistani taxes consisting of: (i) custom and import duties, sales tax, federal excise duty, and other duties and fees payable in the government treasury of Pakistan in respect of the Goods; and (ii) withholding income tax and any tax to be deducted or withheld from the gross amount payable by the Employer to the Sub-Supplier on account of all payments being made for Supply Obligations.

"**Encumbrance**" means any charge, pledge, hypothecation, lien, mortgage, assignment, right of set-off, option, contractual restrictions (such as negative covenants having the effect of creating or acknowledging security interests in favour of creditors) or other encumbrance or security arrangement or interest of any kind securing any obligation or any type of preferential arrangement (including conditional sale, title transfer and retention arrangements) having similar effect.

"Excluded Taxes" has the meaning given to that term in Section 8.8.3.

"**Face Value**" means the amount (at any time) available for drawing / encashment under the Company Securities.

"**Fare Revenue**" means gross revenue generated from charges paid by the passengers on the Buses.

"**Final Bus Design**" has the meaning given to that term in Section 5.5.1.

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"**Final Inspection**" has the meaning given to that term in Section 6.5.1.

"**Final Statement**" has the meaning given to that term in Section 8.2.8.2.

"**Force Majeure Event**" has the meaning given to that term in Section 18.1.

"**Goods**" means the Buses (including the Bus Battery and Structure), Spare Parts and one set of tools and diagnostic equipment procured by the Employer from the Company (through the Sub-Supplier), each in accordance with the Applicable Standards.

"**Goods Warranty Obligations**" means, during the Goods Warranty Period, warranty obligations of the Company in relation to the Goods (except the Bus Battery and Structure), including, remedying of Defect or Deficiencies, in each case, in accordance with the Applicable Standards and the timelines stated in this Agreement.

"**Goods Warranty Period**" means a period that will commence on the respective Delivery Completion Date and end on the date that is twelve (12) months after the Delivery Completion Date Phase II (subject to any extension under Section 12.4 (*Extended Warranty*).

"**GoP**" means the Government of Pakistan.

"**GoS**" means the Government of Sindh.

"**Half Yearly Excess Revenue**" has the meaning given to that term in Section 8.3.3.2.

"**Half-Yearly Period**" means a period of six (6) months during each Operating Year beginning at 12:00 midnight on the last day of the preceding fortnight and ending at 12:00 midnight on the last day of that fortnight.

"**Half-Yearly Payable Amount**" means being the O&M Fee payable for each Half-Yearly Period in an Operating Year.

"**Handover Date**" has the meaning given to that term in Section 11.8.1.

"**Independent Expert(s)**" means the separate independent third-party engineers, transport expert and/or third-party financial advisors appointed by the Employer for, *inter alia,* supervision, verification, approval and certification functions of the Employer under this Agreement.

"**Independent Expert Certificate**" means the certificates to be issued by the Independent Expert, from time to time, to the Revenue Collection Account Bank setting out, in respect of the O&M Fees and/or the Incentive Payment, the Payment Date and the Payable Amount along with the Company's Invoice and/or the Incentive Payment Invoice annexed thereto.

"**Incentive Payments**" has the meaning given to that term in Section 8.3.3.2.

"**Incentive Payment Invoice**" has the meaning given to that term in Section 8.3.1.1(b).

"**Initial Maintenance Period**" means the period of twelve (12) months from the Delivery Completion Date Phase II as defined in **Schedule A** ***(Company's Scope of Work and Employer's Requirements)***.

"**Interim Payments**" means instalments of the Supply Cost payable in such amounts and

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on completion of such Payment Milestones as set out in the Schedule of Payment Milestones.

"**Invoice**" has the meaning given to that term in Section 8.3.1.1.

"**Key Performance Indicators**" means the key performance indicators to be complied with and fulfilled by the Company during the Operating Period as set out in **Schedule G *(Key Performance Indicators)***.

"**KPI Exemption Period**" means the period of ninety (90) calendar days starting from the Commencement Date Phase I.

"**LC**" or "**Letter of Credit**" means the local letter of credit, to be established on behalf of the Employer by the LC issuing bank in favour of the Company, in accordance with Section 8.2.5 (*Timing and Mode of Payments for Supply Cost*) for an amount equal to the Supply Cost in PKR.

"**LC Documents**" has the meaning given to that term in Section 8.2.7.5.

"**Lease Payments**" means the yearly lease payments (as set out in **Schedule O *(Lease Payment)***) payable by the Company during the Lease Payment Period to the Employer under Lease to Own Agreement and set-off from each Invoice in accordance with Section 7.24 *(Lease Payment)* and Section 8.3.1.3.

"**Lease Payment Period**" means the period commencing on the 4th anniversary of Commencement Date Phase II and ending on the Performance End Date.

"**Lease to Own Agreement**" means the agreement (in form and substance acceptable to the Employer) to be executed between the Employer and the Company for lease and (following expiry of the Term) transfer of Buses to the Company.

"**Liquidated Damages**" means collectively, the Delay Liquidated Damages and the Performance Liquidated Damages.

"**Loss**" means any loss, claim, demand, damage, liability, judgment, payment or obligation, all costs and expenses (including without limitation reasonable legal fees) related thereto and amounts in settlement in lieu thereof.

"**Loss of Revenue**" means the loss of revenue (as determined and certified by the Independent Expert) during any Operating Year from any of the circumstances occurring in terms of Section 7.4.1(a), Section 7.19.3 and / or Section 18.5.1, as the case may be, and calculated in accordance with **Schedule Q *(Loss of Revenue)***.

"**Maintain**" or "**Maintenance**" means together the Planned Maintenance and the Unplanned Maintenance of the Covered Assets as detailed in **Schedule A *(Company's Scope of Work and Employer's Requirements)***.

"**Maintenance Performance Guarantee**" means an irrevocable, unconditional and on-demand bank guarantee, denominated and payable in PKR, having a Minimum Credit Rating at all times in an amount set out in Section 9.2 *(Maintenance Performance Guarantee)*, issued by a bank, having a Minimum Credit Rating at all times, in each case acceptable to the Employer, in the form set out in **Schedule D *(Form of Retention Performance Guarantee)***.

"**Maintenance Performance Guarantee Expiry Date**" has the meaning given to that term

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in Section 9.2.2.

"**Minimum Credit Rating**" means, as applicable, the Acceptable International Credit Rating or the Acceptable Pakistan Credit Rating.

"**Mobilization Period Phase I**" has the meaning given to the term in Section 2.2.1(a).

"**Mobilization Period Phase II**" has the meaning given to the term in Section 2.2.1(b).

"**Mobilization Period Insurances**" means the policies of insurance and any exhibits thereto required to be maintained by the Company in respect of the Mobilization Period Phase I and Mobilization Period Phase II pursuant to Section 7.21 (*Insurance*) and **Schedule K (*Insurance*)**.

"Mobilization Period Requirements" means collectively the Mobilization Period Requirements Phase I and Mobilization Period Requirements Phase II.

"**Mobilization Period Requirements Phase I**" has the meaning given to the term in Section 2.2.2.

"**Mobilization Period Requirements Phase II**" has the meaning given to the term in Section 2.2.3.

"**Non-Compliance**" has the meaning given to that term in Section 7.10.1.

"**Non-Compliant Goods**" has the meaning given to that term in Section 5.8.2(b).

"**Non-Fare Revenue**" has the meaning given to that term in Section 4.12.1.

"**Non-Fare Revenue Agreements**" has the meaning given to that term in Section 4.11.1.

"**Non-Fare Revenue Plan**" has the meaning given to that term in Section 4.10.1.

"**Notified, Notice**" and its grammatical variations shall mean as notified in writing.

"O&M Fees" means the Benchmark O&M Fee for each Operating Year payable by the Employer to the Company for each Payment Period in consideration of the O&M Services performed by the Company as may be adjusted pursuant to Section 8.3.1.3, Section 8.8.3 and Section 19 *(Changes)*.

"**O&M Manuals**" mean the manuals for the Company's operation and maintenance of the Covered Assets and as supplemented and amended from time to time and as updated by the Company in accordance with this Agreement.

"**O&M Personnel**" means those employees (including Drivers and other maintenance staff) of the Company hired for the performance of the obligations of the Company, including the O&M Services, and where applicable trained in accordance with the requirements prescribed under **Schedule A *(Company's Scope of Work and Employer's Requirements)***.

"**O&M Plan Phase I**" has the meaning given to that term in Section 7.1.1.

"**O&M Plan Phase II**" has the meaning given to that term in Section 7.1.1.

"**O&M Plan**" means collectively the O&M Plan Phase 1 and O&M Plan Phase II.

"**O&M Services**" means the Operation and Maintenance of the Covered Assets, the

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training of all relevant O&M Personnel (including the Drivers), the provision of all Parts, chemical and supplies required to operate the Covered Assets and performance of services detailed in **Schedule A (*Company's Scope of Work and Employer's Requirements*)** to be carried out or caused to be carried out by the Company.

"Operating Committee" means the operating committee established or to be established by the Employer for co-ordination of the respective programmes and procedures of the Company for the operation and maintenance of the Project and performance of the Company's Obligations.

"**Operating Period**" means the period commencing on the Commencement Date Phase I and ending on the Performance End Date.

"**Operating Period Insurances**" means the policies of insurance and any exhibits thereto required to be maintained by the Company during the Operations Period pursuant to Section 7.21 (*Insurance*) and **Schedule K (*Insurance*)**.

"**Operating Year**" means each period of twelve (12) consecutive months, the first such period commencing on the Commencement Date Phase I and thereafter commencing on each anniversary of the Commencement Date Phase I.

"**Operating Year Excess Revenue**" has the meaning given to that term in 8.3.3.2.

"**Operations**" means all the Company obligations relating to the Covered Assets each in accordance with the relevant standards, requirements and criterion that are set out in **Schedule A (*Company's Scope of Work and Employer's Requirements*)**.

"**Operations Control Centre**" means the operations control centre being central command facility of the Project used for, *inter alia*, the monitoring, coordinating and managing the overall operations of the Project.

"**Order**" has the meaning given to that term in Section 5.6.1.

"**Order Date**" has the meaning given to that term in Section 5.6.1.

"**Order of Precedence**" has the meaning given to that term in Section 3.6.1.

"**Pakistani Rupees**" or "**PKR**" means the lawful currency of Islamic Republic of Pakistan.

"**Part**" or "**Parts**" means new parts (other than Spare Parts), materials, components, consumables and other goods furnished by the Company under this Agreement for the performance of O&M Services in respect of the Covered Assets.

"**Party**" means Employer or Company individually and "**Parties**" means Employer and Company collectively.

"**Payable Amount**" has the meaning given to that term in Section 8.3.1.5.

"**Payment Date**" has the meaning given to that term in Section 8.3.1.5.

"**Payment Milestone Completion Certificate**" has the meaning given to that term in Section 8.2.4.4(a).

"**Payment Milestone Rejection Certificate**" has the meaning given to that term in Section 8.2.4.4(b).

"**Payment Milestones**" means the milestones identified in the Schedule of Payment Milestones.

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"**Payment Period**" means a period of five (5) days during the Term beginning at 12:00 midnight on the last day of the preceding fortnight and ending at 12:00 midnight on the last day of that fortnight.

"**Performance End Date**" means, unless terminated earlier in accordance with Section 11 (*Default and Termination*), the date of expiration of this Agreement which shall be the date on which:

(a) the twelfth (12th) anniversary of the Commencement Date Phase I has occurred; and

(b) the Employer has issued the Release Certificate.

"**Performance Liquidated Damages**" means the Liquidated Damages payable by the Company during the Operating Period for any Non-Compliance, in accordance with Section 7.10 (*Performance Liquidated Damages During Operating Period*).

"**Performance Liquidated Damages Cap**" means an amount equivalent to five percent (5%) of the Benchmark O&M Fee for the respective Operating Year.

"**Performance Security**" means an irrevocable, unconditional and on-demand bank guarantee, denominated and payable in PKR, having a Minimum Credit Rating at all times in an amount set out in Section 9.3 *(Performance Security)*, issued by a bank, having a Minimum Credit Rating at all times, in each case acceptable to the Employer, in the form set out in **Schedule E** ***(Form of Performance Security)***.

"**Performance Security Expiry Date**" has the meaning given to that term in Section 9.3.2.

"**Person**" or "**person**" means any natural person, corporation, company, partnership, firm, voluntary association, joint venture, trust, unincorporated organisation, authority or any other entity whether acting in an individual, fiduciary or other capacity.

"**Phase I**" means the Phase I Obligation to be undertaken and perform by the Company in terms of this Agreement commencing from the Effective Date until the Commencement Date Phase II.

"**Phase II**" means the Phase II Obligation to be undertaken and perform by the Company in terms of this Agreement commencing from the Effective Date until the Performance End Date.

"**Phase I Obligations**" means: (a) supply and operations of fifty (50) Buses of 12 metre on the designated route of Karachi; and (b) construction of one (1) depot (along with Bus Stations on the designated route) in Karachi, each as part of Company's Obligation.

"**Phase II Obligations**" means: (a) supply and operations of one hundred (100) Buses of 12 metre and one hundred buses (100) for 8.5 metre on the designated routes of Karachi and Larkana; and (b) construction of five (5) depot (along with Bus Stations on the designated routes) in Karachi and Larkana, each as part of Company's Obligation.

"**Planned Maintenance**" means those tasks identified as routine services, scheduled services, wear and tear parts replacements and break-in maintenance and as further detailed in **Schedule A** ***(Company's Scope of Work and Employer's Requirements)***.

"**Production Buses**" means the 8.5 meter and 12 meter buses to be supplied by the Company pursuant to the Order in accordance with the Approved Final Bus Design for each of the 8.5 meter and 12 meter buses and Section 5.6.1.

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"**Project**" means the Sindh Intra-District Peoples Bus Service Project for Karachi and Larkhana.

"**Project Insurance Policies**" means the policies of insurance and any exhibits thereto required to be maintained by the Employer and the Company pursuant to Section 7.21 (*Insurance*) and **Schedule K (*Insurance*)**.

"**Proposal**" means the technical and financial proposal submitted by the Company.

"**Prototype Buses**" means collectively the prototype buses manufactured for the Buses i.e., one each for 12 meter Bus and the 8.5 meter Bus.

"**Prototype Tests**" means the tests required to be carried out on the Prototype Buses as more specifically described in the Employer's Requirements.

"**Prototype Tests Acceptance Certificate**" means the certificate issued by the Employer certifying successful completion of the Prototype Tests in accordance with Section 5.4.4.

"**Prudent Industry Practices**" means those practices, methods, equipment, specifications and standards of safety and performance, as the same may change from time to time, as are commonly used in the country by experienced firms performing operations and maintenance services on projects of similar type, size, complexity and location which, in the exercise of reasonable judgment and in the light of the facts known at the time the decision was made, are considered good, safe and prudent practice, and as are in accordance with generally accepted national standards of professional care, skill, diligence and competence applicable to operations and maintenance practices.

"**Reconciliation Amounts**" means collectively the Reconciliation Incentive Payment Amounts and the Reconciliation O&M Fee Amounts.

"**Reconciliation Incentive Payment Amounts**" has the meaning given to that term in Section 8.3.3.2.

"**Reconciliation O&M Fee Amounts**" has the meaning given to that term in Section 8.3.3.3.

"**Release Certificate**" means the certificate to be issued under Section 10 (*Application for Release Certificate*) in the form attached hereto as **Schedule I (*Release Certificate*)**.

"**Release Date**" means the date of issuance of the Release Certificate.

"**Relevant Documents**" has the meaning given to that term in Section 17.2.1.

"**Restoration**" has the meaning given to that term in Section 18.5.2.

"**Restoration Cost**" has the meaning given to that term in Section 18.5.2.

"**Revenue**" means (as applicable) the amount collected by the Company as, the: (i) Fare Revenue; and (ii) Non-fare Revenue.

"**Revenue Collection Account**" means the Pakistani Rupee denominated account of the Employer to be established and maintained at the designated branch of the Revenue Collection Account Bank for receiving the Revenues, details of which shall be Notified in writing by the Employer.

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"**Revenue Collection Account Bank**" means the financial institution in which the Employer opens and maintains the Revenue Collection Account.

"**Revenue Shortfall**" has the meaning given to that term in Section 8.3.3.3.

"**Rs**" or "**PKR**" or **"Pakistani Rupees"** means the lawful currency of Islamic Republic of Pakistan.

"**Schedule of Payment Milestones**" means the schedule set out as **Schedule R** ***(Schedule of Payment Milestones)*** stipulating the Payment Milestones.

"Scheduled Commencement Date Phase I" means the date falling four (4) months after the Effective Date (unless extended by the Employer from time to time pursuant to Section 2.1.2).

"Scheduled Commencement Date Phase II" means the date falling six (6) months after the Effective Date (unless extended by the Employer from time to time pursuant to Section 2.1.2).

"**Schedule of Delivery**" means the schedule set out as **Schedule T** ***(Schedule of Delivery)*** stipulating the timelines for the execution of the Supply Obligations.

"**Serial Defects**" means a substantially similar defect in the Buses, i.e., a failure showing the similar symptoms occurring in the same part or component of at least twenty percent (20%) of the Buses.

"**Serial Defects Notification Period**" means in respect of the Buses, the period commencing on the respective Delivery Completion Date and end on the date that is twenty-four (24) months after the respective Delivery Completion Date.

"**SMTA Act**" means the Sindh Mass Transit Authority Act, 2014 (as may be amended, modified, supplemented, extended or re-enacted from time to time).

"**Spare Parts**" means materials, spare parts, replacement components (including critical and specialist spare parts as well as generic parts) and other such items required for the Operations and Maintenance of the Buses.

"**Standing Instructions**" means the irrevocable (subject to Section 8.3.2.4 and Section 8.3.2.5) standing instructions issued by the Employer to the Revenue Collection Account Bank in respect of the Revenue Collection Account in accordance with this Agreement and substantially in the form and content attached hereto at **Schedule S** ***(Form of Standing Instructions)***.

"**Sub-Contractor**" means any person named in this Agreement as a sub-contractor and identified in the list set forth in **Schedule J** ***(List of Sub-Contractor)***, or any person appointed as a sub-contractor for undertaking any part of the O&M Services (subject to Section 15.3 *(Subcontracting)*) and the legal successors in title to each of these persons.

"**Sub-Supplier**" means Higer Bus Company limited a company incorporated under the laws of People's Republic of China, being the sub-supplier from whom the Company shall procure the Goods for the purposes of the Project and deliver to the Delivery Point.

"**Successor Company**" has the meaning given to that term in Section 11.7.1.

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"**Supply**" means the procurement, supply and delivery of the Goods to the Delivery Point in terms of this Agreement.

"**Supply Cost**" means the sum of USD 38,500,000/- (United States Dollars Thirty Eight Million Five Hundred Thousand) being the total fixed lump sum amounts payable in PKR converted at the Base Exchange Rate (as adjusted in accordance with Schedule R (*Schedule of Payment Milestone*)) payable to the Company under the Letter of Credit for the supply and delivery of Goods (as adjusted pursuant to Section 5.6.2 based on the Order or otherwise pursuant to the terms of Section 8.8.3, Section 12.5.2(b) and Section 19 *(Changes)).*

"**Supply Documents**" means the calculations, computer programs and other software, drawings, manuals, models and other documents of a technical nature supplied by the Company (through the Sub-Supplier) in respect of the Supply Obligations under this Agreement, as described in Section 5.15 *(Supply Documents).*

"**Supply Obligations**" means all obligations of the Company under this Agreement pertaining to the procurement and supply of the Goods, the Supply Documents, payments of damages and indemnities, the Goods Warranty Obligations and the Bus Battery and Structure Warranty Obligations, including remedying of Defect or Deficiencies and Serial Defects, in each case, in accordance with the Applicable Standards and the timelines stated in this Agreement.

"**Term**" has the meaning given to that term in Section 2.1.1.

"**Term Expiry Criteria**" means the term expiry criteria as set out in **Schedule H (*Term Expiry Criteria*)**.

"**Termination Payment**" means the termination payment (as determined and certified by the Independent Expert) payable by the Employer under Section 11.6.1(d) and calculated in accordance with **Schedule U *(Termination Payment)***.

"**Test Location**" means the location of any testing within or outside of Pakistan, including but not limited to factories in which the Buses, or any part thereof, is being manufactured or tested.

"**Third Party Expert**" or "**TPE**" means the independent third party selected following mutual agreement between the Parties and appointed by the Company at its own cost within two (2) months from the Effective Date.

"**TPE Certificate of Compliance**" means the certificate of compliance to be issued by the Independent Expert respectively for the Batch of Goods Phase I and the Batch of Goods Phase II following inspection prior to dispatch of each Batch of Goods from the country of origin in accordance with Section 5.8.2(a).

"**TPE Certificate of Rejection**" means the certificate of rejection that may be issued by the Independent Expert respectively for the Batch of Goods Phase I and the Batch of Goods Phase II following inspection prior to dispatch of each Batch of Goods from the country of origin in accordance with Section 5.8.2(b).

"**Transferee**" has the meaning given to that term in Section 15.2.1.

"**Transferor**" has the meaning given to that term in Section 15.2.1.

"**Transition Period**" has the meaning given to that term in Section 11.7.1.

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"**United States Dollar**", "**USD**" or "**US$**" means the lawful currency of the United States of America.

"USD Letter of Credit" has the meaning given to that term in Section 8.2.7.3.

"**Unplanned Maintenance**" means all maintenance and services other than Planned Maintenance, to ensure that the Covered Assets are Operated and Maintained to meet the Applicable Standards.

"**Warranty**" has the meaning given to that term in Section 12.1.1.

"**Warranty Bond**" means an irrevocable, unconditional and on-demand bank guarantee, denominated and payable in USD, having a Minimum Credit Rating issued by a bank, having a Minimum Credit Rating at all times, in each case acceptable to the Employer, in the form set out in **Schedule F (*Form of Warranty Bond*)**.

"**Warranty Bond Original Expiry Date**" has the meaning given to that term in Section 9.4.2.

"**Warranty Period**" has the meaning given to that term in Section 12.2.2.

1.2. INTERPRETATION

In this Agreement:

(a) words indicating one gender include all genders;

(b) words indicating the singular also include the plural and words indicating the plural also include the singular;

(c) provisions including the word "agree", "agreed" or "agreement" require the agreement to be recorded in writing;

(d) "written" or "in writing" means hand-written, type-written, printed or electronically made, and resulting in a permanent record;

(e) references to Sections, Exhibits, Schedules and Annexes are, unless the context otherwise requires, references to Sections, Exhibits, Schedules or Annexes to this Agreement;

(f) a reference to any legislation or legislative provision includes any statutory modification, amendment, or re-enactment of or legislative provision substituted for, and any subordinate legislation under that legislation or legislative provision;

(g) unless otherwise provided herein, whenever a consent or approval is required by one Party from the other Party, such consent or approval shall not be unreasonably withheld or delayed;

(h) except as provided in Section 13 (*Confidential Information*), nothing shall be construed or interpreted as limiting, diminishing or prejudicing in any way the rights of the Employer to claim any benefit provided under Applicable Laws (whether in effect now or in the future);

(i) headings shall not be taken into consideration in the interpretation of this Agreement;

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(j) the words "including", "includes" and any variants of those words will be read as if followed by the words "without limitation";

(k) any reference to a party includes its respective successors in interest and permitted assigns, from time to time;

(l) unless otherwise specifically provided in this Agreement, a reference to an agreement shall be a reference to that agreement as amended, re-stated, supplemented, modified or novated from time to time; and

(m) a reference to business day(s) hereunder will be construed as a reference to a day on which banks are legally permitted to be open for business in Pakistan and, in respect of the Company Securities, such other jurisdictions where an issuer of one or more Company Securities is situated.

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2. TERM, MOBILIZATION PERIOD AND COMMENCEMENT

2.1. EFFECTIVE DATE AND TERM

2.1.1. This Agreement shall become effective on the Effective Date and unless terminated earlier in accordance with Section 11 *(Default and Termination)*, shall end on the Performance End Date (the **"Term"**).

2.1.2. Unless otherwise set out in this Agreement, the Company's Obligation (other than the Mobilization Period Requirements Phase I) shall commence upon the Commencement Date Phase I.

2.2. MOBILIZATION PERIOD

2.2.1. The mobilization period in respect of:

(a) Phase I shall commence from the Effective Date (except as may be extended by the Employer) and shall, unless terminated earlier in accordance with Section 11 *(Default and Termination)*, expire on the earlier of: (a) the Scheduled Commencement Date Phase I; or (b) upon achieving the Commencement Date Phase I (**"Mobilization Period Phase I"**).

(b) Phase II shall commence from the Effective Date (except as may be extended by the Employer) and shall, unless terminated earlier in accordance with Section 11 *(Default and Termination)*, expire on the earlier of: (a) the Scheduled Commencement Date Phase II; or (b) upon achieving the Commencement Date Phase II (**"Mobilization Period Phase II"**).

Provided, however, the Employer may at any time in its sole discretion: (a) defer and/or waive any of the Mobilization Period Requirements; and/or (b) extend the Scheduled Commencement Date Phase I or Scheduled Commencement Date Phase II (as applicable), each (a) and (b) in accordance with Section 2.4 (*Waiver and/or Deferral of Mobilization Period Requirements and Extension of Scheduled Commencement Date*).

2.2.2. During the Mobilization Period Phase I, the Company shall:

(a) supply the Goods in accordance with Section 5 *(Supply Obligations)* and Schedule of Delivery by the Scheduled Commencement Date Phase I;

(b) not later than thirty (30) days from the Effective Date, commence the Construction Works in accordance with Section 6 *(Construction Works)* to be completed by the Scheduled Commencement Date Phase I;

(c) not later than fifteen (15) days from the Effective Date, submit the Construction Documents under Section 6.2 *(Review & Approval of Construction Documents)*;

(d) not later than five (5) days from the Effective Date, submit the O&M Plan Phase I under Section 7.1 *(O&M Plan)*;

(e) not later than twenty (20) days from the Effective Date, submit the Non-Fare Revenue Plan under Section 4.10 (*Non-Fare Revenue Plan*);

(f) no later than ten (10) days from the Effective Date, submit the list of Consents under Section 4.8.2;

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(g) submit invoice for Advance Payment, together with the Advance Payment Security in accordance with Section 8.1 *(Advance Payments)*;

(h) in accordance with Section 7.21 (*Insurances*) and **Schedule K (*Insurance*)**, procure the: (a) Mobilization Period Insurances, no later than five (5) days from the Effective Date; and (b) the Operating Period Insurances, no later than thirty (30) days prior to the Scheduled Commencement Date Phase I;

(i) complete any other works and/or services as required under **Schedule A (*Company's Scope of Work and Employer's Requirements*)**; and

(j) no later than fifteen (15) days from the Effective Date, execute the Lease to Own Agreement with the Employer.

(requirements set out in (a) to (j) above shall collectively be referred to as the "**Mobilization Period Requirements Phase I**").

2.2.3. During the Mobilization Period Phase II, the Company shall:

(a) supply the Goods in accordance with Section 5 *(Supply Obligations)* and schedule of Delivery by the Scheduled Commencement Date Phase II;

(b) not later than thirty (30) days from the Commencement Date Phase I, commence the Construction Works in accordance with Section 6 *(Construction Works)* to be completed by the Scheduled Commencement Date Phase II;

(c) not later than five (5) days from the Commencement Date Phase I, submit the O&M Plan Phase II under Section 7.1 *(O&M Plan)*;

(d) in accordance with Section 7.21 (*Insurances*) and **Schedule K (*Insurance*)**, procure the: (a) Mobilization Period Insurances, no later than five (5) days from the Commencement Date Phase I; and (b) the Operating Period Insurances, no later than thirty (30) days prior to the Scheduled Commencement Date Phase II; and

(e) complete any other works and/or services as required under **Schedule A (*Company's Scope of Work and Employer's Requirements*)**.

(requirements set out in (a) to (h) above shall collectively be referred to as the "**Mobilization Period Requirements Phase II**").

2.3. COMMENCEMENT DATE

2.3.1. Subject to Section 2.2.1, the commencement date shall be the actual date on which each of the: (a) Mobilization Period Requirements Phase I have been completed to the satisfaction of the Employer (the "**Commencement Date Phase I**"); and (b) Mobilization Period Requirements Phase II have been completed to the satisfaction of the Employer (the "**Commencement Date Phase II**").

2.3.2. In the event the Commencement Date Phase I is not achieved by the Scheduled Commencement Date Phase I; and/or (b) Commencement Date Phase II is not achieved by the Scheduled Commencement Date Phase II (as applicable), unless extended in terms of Section 2.2.1, the Employer shall have the right (to be exercised at its sole and absolute discretion) to (a) impose Delay Liquidated Damages (as certified by the Independent Expert); and/or (b) terminate this Agreement by issuance of a written termination notice to the Company. In such case, the Employer shall be entitled to encash the Performance

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Security to its full value. For the avoidance of doubt, it is clarified that the provisions of this Section 2.3.2 shall not limit or prejudice in any manner the Parties' right to terminate this Agreement in accordance with the provisions of Section 11 *(Default and Termination)*.

2.4. WAIVER AND/OR DEFERRAL OF MOBILIZATION PERIOD REQUIREMENTS AND EXTENSION OF SCHEDULED COMMENCEMENT DATE

2.4.1 The Employer on the request of the Company, may (at its discretion) waive and/or defer any of the Mobilization Period Requirements Phase I and/or Mobilization Period Requirements Phase II (as applicable), with such conditions as it may deem fit.

2.4.2 Without prejudice to the terms of Section 2.4.1, failure by the Company to complete the Mobilization Period Requirements Phase I and/or Mobilization Period Requirements Phase II (as applicable) to the satisfaction of the Employer, by the respective Scheduled Commencement Date Phase I or Scheduled Commencement Date Phase II (as applicable), shall constitute a material breach in terms of this Agreement.

2.4.3 Any deferral and/or waiver of a Mobilization Period Requirement Phase I and/or Mobilization Period Requirements Phase II (as applicable) in terms of this Section 2.4 (*Waiver and/or Deferral of Mobilization Period Requirements and Extension of Scheduled Commencement Date*) shall be notified in writing to the Company.

2.4.4 Notwithstanding anything contained herein, the: (a) Scheduled Commencement Date Phase I; or (b) Scheduled Commencement Date Phase II (as applicable) may be extended from time to time by the Employer.

2.4.5 If the Company considers itself to be entitled to an extension of the: (a) Scheduled Commencement Date Phase I; or (b) Scheduled Commencement Date Phase II (as applicable) including an extension under, Section 18 *(Force Majeure)* and/or Section 19 *(Changes)*, the Company shall give notice to the Employer describing the event or circumstance giving rise to such claim of extension. The notice shall be given as soon as practicable, and not later than ten (10) days after the Company became aware of the relevant event or circumstance. Such notice shall make reference to the provision of this Agreement that stipulates the entitlement of the Company to claim for an extension of any timeline. When determining each extension of time, the Employer shall review previous determinations and make a determination in terms of Section 3.5 (*Determinations*) and may ask for such further information / documentation as the Employer may require for making such determination.

Provided, however that the Company shall not be entitled to any extension including for any of the events occurring under Section 18 *(Force Majeure)* and/or Section 19 *(Changes)* in the: (a) Scheduled Commencement Date Phase I; or (b) Scheduled Commencement Date Phase II (as applicable) in respect of any period where the Company would have nevertheless experienced delays in any case for reasons not attributable to the Employer.

2.5. OPERATING PERIOD

2.5.1. During the Operating Period the Company shall execute the O&M Services and the Employer shall make payments of the O&M Fees in accordance with Section 8 *(Bus Supply and O&M Fees and Other Payment Terms)* in respect of: (a) Phase I from Commencement Date Phase I; and (b) Phase II from Commencement Date Phase II.

2.5.2. O&M Services in respect of the Phase II shall commence from Commencement Date Phase II and continue for the remaining Term.

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2.6. DELAY LIQUIDATED DAMAGES DURING MOBILIZATION PERIOD

2.6.1. If the Company fails to complete all the Mobilization Requirements Phase I or Mobilization Period Requirements Phase II (as applicable) (except as may be deferred and/or waived in accordance with Section 2.4 (*Waiver and/or Deferral of Mobilization Period Requirements and Extension of Scheduled Commencement Date*)) by the: (a) Scheduled Commencement Date Phase I; or (b) Scheduled Commencement Date Phase II (as applicable), the Company shall pay Delay Liquidated Damages in the amounts specified in Section 2.6.2 to the Employer for the Default Delay Period in accordance with Section 8.6 *(Payment of Delay Liquidated Damages)*.

2.6.2. For each day (or part thereof) of the Default Delay Period, the Company shall pay PKR 1,000,000/- (Pakistani Rupees One Million only) per day. The Employer shall not be restricted from invoicing for such claimable amounts after the: (a) Commencement Date Phase I; or (b) Commencement Date Phase II (as applicable).

2.6.3. The total amount due under this Section 2.6 (*Delay Liquidated Damages During Mobilization Period*) shall not exceed five percent (5%) of the Benchmark O&M Fee for the first Operating Year (as specified by the Employer in Schedule N *(Benchmark O&M Fee)* ("**Delay Liquidated Damages Cap**").

2.6.4. Subject to Section 2.4 (*Waiver and/or Deferral of Mobilization Period Requirements and Extension of Scheduled Commencement Date*), in the event the: (a) Commencement Date Phase I has not occurred within one hundred seventeen (117) days after the expiry of the Scheduled Commencement Date Phase I; or (b) Commencement Date Phase II has not occurred within one hundred seventeen (117) days after the expiry of the Scheduled Commencement Date Phase II (as applicable), and such delay is due to events for which the Company is not entitled to any extension of time, or the Delay Liquidated Damages Cap (by way of calculation) has been exceeded, the Employer will have the right, *inter alia*, to terminate this Agreement.

2.6.5. The Delay Liquidated Damages specified in Section 2.6.2 have been calculated by the Parties as representing the actual daily loss to the Employer for the Default Delay Period and are not a penalty. Given the nature of the Mobilization Period Requirements to be performed by the Company, it is entirely possible to calculate the actual loss suffered by the Employer and the stated Delay Liquidated Damages in Section 2.6.2 reflect such calculation. The Company thus hereby agrees and acknowledges that the Delay Liquidated Damages are a reflection of actual loss suffered by the Employer.

2.6.6. These Delay Liquidated Damages shall be the only damages due from the Company for such default, other than in the event of termination under Section 11.2 *(Termination for Company's Default)* prior to completion of the Mobilization Period Requirements. Any payment or claim for Delay Liquidated Damages shall not relieve the Company from its obligation to complete and fulfil the Mobilization Period Requirements, or from any other duties, obligations or responsibilities which it may have under this Agreement.

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3. THE EMPLOYER

3.1. GENERAL

3.1.1. The Employer shall:

(a) Fulfil payment and other responsibilities and obligations under this Agreement in the manner and at the time necessary to meet Company's schedule and the requirements of this Agreement.

(b) Provide reasonable assistance and ensure close coordination with the Company in obtaining any relevant Consents that are required to be obtained in the Company's name within Pakistan.

(c) Provide (either directly or through the Operations Control Centre) the Dispatch Schedule and Headway Targets in accordance with Section 7.11 *(Dispatch Schedule and Headway Targets)*.

3.2. EMPLOYER'S REPRESENTATIVE

3.2.1. As part of the Employer's performance of its obligations under this Agreement, during the Term, the Employer shall designate for this Agreement one or more individual(s), each of whom shall function as the Employer's single point of contact (the "**Employer's Representative**"). The Employer's Representative shall serve as a contact point for the Company for matters pertaining to this Agreement.

3.2.2. The Employer's Representative shall carry out the duties assigned to it, and shall exercise the authority delegated to it, by the Employer. Unless and until the Employer notifies the Company otherwise, the Employer's Representative shall be deemed to have the full authority of the Employer under this Agreement, except in respect of Section 11.2 (*Termination for Company's Default*) or any right to amend this Agreement. Notwithstanding the appointment of the Employer's Representative with power to monitor and supervise the progress of the Company, the Company shall remain fully responsible for its obligations under this Agreement and knowledge of the Employer's Representative of any activities of the Company will not have the effect of absolving the Company of its obligations or liabilities under this Agreement.

3.2.3. The Employer may also utilize other Employer's personnel and performance support methods in connection with performance of this Agreement including with respect to any approval functions of the Employer under this Agreement and for such purposes the Employer's personnel shall be deemed to be acting as an Employer's Representative.

3.2.4. The Employer's Representative may change from time to time during the Term of this Agreement, provided that the Employer shall have an individual at all times serving such a role regardless of the specific individual or job title used and provided further that the Employer shall provide prior written notice of any such changes.

3.2.5. The Employer may involve the Independent Expert engaged by the Employer in respect of the Project. The Independent Expert shall be empowered by the Employer to:

(a) carry out any approval functions of the Employer under this Agreement; and

(b) validate any technical and financial matters as specified by the Employer, and for such purposes the Independent Expert shall be deemed to be acting as an Employer's Representative.

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Furthermore, for the purposes of Section 3.2.5(a) and (b) above, the Independent Expert shall have access to the Covered Assets and all related information, documentation etc, and its determinations shall be binding on the Company.

3.2.6. In the event any dispute arises between the Parties with regard to any advice, instruction, decision, direction and/or award of the Independent Expert, then such dispute shall be referred for dispute resolution in accordance with Section 21 (*Dispute Resolution*).

3.3. EMPLOYER'S INSTRUCTIONS

3.3.1 The Company shall comply with written instructions given by the Employer and/or the Employer's Representative, from time to time in relation to the performance of the Company's Obligations (the "**Employer's Instructions**"). The manner for implementation of the Employer's Instructions will be determined by the Company following consultation with the Employer's Representative, provided at all times, the Applicable Standards are complied with.

3.4. EMPLOYER'S CLAIMS

3.4.1. Other than for Liquidated Damages payable in accordance with Section 2.6 (*Delay Liquidated Damages During Mobilization Period*) and / or Section 7.10 (*Performance Liquidated Damages During Operating Period*), if the Employer considers itself to be entitled to any payment (as certified by the Independent Expert) under this Agreement, and/or to any extension of the Warranty Period and/or the extension (if any) of the relevant performance deadline in accordance with Section 18 (*Force Majeure*), the Employer shall give notice and particulars to the Company pursuant to this Section.

3.4.2. The notice shall be given as soon as practicable after the Employer becomes aware of the event or circumstances giving rise to the claim. A notice relating to any extension of the Warranty Period shall be given before the expiry of such period.

3.4.3. The particulars shall specify the Section or other basis of the claim and shall include substantiation of the amount and/or extension to which the Employer considers itself to be entitled in connection with the Agreement. The Employer shall then proceed to determine, in accordance with Section 3.5 *(Determinations)* to agree or determine: (i) the amount (if any) which the Employer is entitled to be paid by the Company; and/or (ii) the extension (if any) of the Warranty Period in accordance with Section 12 (*Warranty*); and / or (iii) the extension (if any) of the relevant performance deadline in accordance with Section 18 (*Force Majeure*).

3.4.4. The Company shall be obligated to pay the Employer such amounts determined pursuant to this Section 3.4 (*Employer's Claims*). The Employer may also set off or deduct any amounts determined pursuant to this Section 3.4 (*Employer's Claims*) from any moneys due, or to become due, to the Company and/or the Employer shall be entitled to encash the Company's Securities or to otherwise claim against the Company, in accordance with this Section.

3.5. DETERMINATIONS

3.5.1. Whenever this Agreement provides that the Employer shall proceed in accordance with this Section 3.5 (*Determinations*) to agree or determine any matter, the Employer shall consult with the Company in an endeavour to reach agreement. If agreement is not reached within a period of ten (10) days, the Employer shall make a fair determination in accordance with this Agreement, taking due regard of all relevant circumstances.

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3.5.2. The Employer or the Employer's Representative shall give notice to the Company of each agreement or determination, with supporting particulars. If the Company disagrees with such determination, the Company shall give notice, to the Employer, of its dissatisfaction with a determination within fourteen (14) days of receiving it. Either Party may then refer the Dispute for dispute resolution in accordance with Section 21 *(Dispute Resolution)*.

3.6. ORDER OF PRECEDENCE

3.6.1 The documents forming this Agreement are to be taken as mutually explanatory of one another. If there is an ambiguity, discrepancy or inconsistency between the documents forming part of this Agreement, the following order of precedence shall apply (the "**Order of Precedence**"):

(a) any amendment or modification to this Agreement, made by both Parties after the Effective Date of this Agreement;

(b) this Agreement (excluding the Schedules, Exhibits and Annexures);

(c) the Schedules (together with their Exhibits and Annexures).

4. THE COMPANY'S GENERAL OBLIGATIONS

4.1. THIS AGREEMENT

4.1.1. In consideration of the Bus Supply and O&M Fees payable by the Employer, the Company hereby agrees to undertake and perform and / or cause to be undertaken and performed, the Company's Obligations, in accordance with and subject to the terms of this Agreement.

4.2. GENERAL OBLIGATION REGARDING SUPPLY

4.2.1 In consideration of the payments of the Supply Cost, the Company hereby covenants with the Employer:

(a) to design Prototype Buses in accordance with the Applicable Standards;

(b) to manufacture and produce Prototype Buses in accordance with the Approved Detailed Bus Design;

(c) following issuance of the Prototype Tests Acceptance Certificate, to manufacture and produce or cause to be manufactured and produced the Production Buses in accordance with the Approved Final Bus Design under Section 5.6 *(Manufacture of Buses)*;

(d) to supply the Buses to the Employer in accordance with the Schedule of Delivery by the Scheduled Commencement Date;

(e) to supply Spare Parts to the Employer in accordance with Section 7.16 *(Training and Supply of Spare Parts)*;

(f) to remedy any Defects or Deficiencies or any Serial Defects in the Buses; and

(g) to be responsible for the Supply Obligations, which shall be performed so as to meet the Applicable Standards.

4.3. GENERAL OBLIGATIONS REGARDING CONSTRUCTION WORKS

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4.3.1. The Company shall ensure that the Construction Works are designed, executed and completed in accordance with the Applicable Standards within the Mobilization Period.

4.3.2. The Construction Works shall include any work which is necessary to satisfy the Applicable Standards, or is implied by this Agreement, and all works which (although not mentioned in this Agreement) are necessary for the completion, or safe and proper operation, of the Construction Works.

4.3.3. The Company shall, whenever required by the Employer, submit details of the arrangement and methods which the Company proposes to adopt for the execution of the Construction Works in accordance with the Applicable Standards. No significant alteration to these arrangements and methods shall be made without this having previously been notified to the Employer.

4.4. GENERAL OBLIGATIONS REGARDING O&M SERVICES

4.4.1. In consideration of the payments of the O&M Fees to be made by the Employer to the Company under this Agreement, the Company hereby covenants with the Employer to:

(a) continuously, diligently perform and execute the O&M Services as per the Applicable Standards and any other manuals, policies, procedures and plans to be established pursuant to this Agreement (including the Applicable Standards);

(b) execute the O&M Services in a manner so that it does not result in a breach of any warranties in respect of the Buses; and

(c) ensure that the O&M Services are executed with due skill and care, in a proper, workmanlike manner with properly equipped facilities in accordance with recognized good practice and Applicable Standards.

4.5. OTHER OBLIGATIONS

4.5.1. Any data or information received by the Company, from the Employer or otherwise, shall not relieve the Company from its responsibility for execution and performance of the Company's Obligations and shall not result in any increase in the Bus Supply and O&M Fees.

4.5.2. The Employer shall not be responsible for any error, inaccuracy or omission of any kind in the Employer's Requirements as originally included in this Agreement and shall not be deemed to have given any representation of accuracy or completeness of any data or information.

4.5.3. The Company shall supply the Goods and provide the Supply Documents required in and for the Supply Obligations and remedying (free of cost) of any Defects or Deficiencies or Serial Defects.

4.5.4. The Employer's Requirements shall be deemed to include all specifications and requriements relating to the Company's Obligations that are necessary to satisfy the Employer's Requirements, or implied by this Agreement or specifications which (although not mentioned in this Agreement) are necessary for stability or safe and proper operations and maintenance of the Covered Assets and to ensure that the Company's Obligations meet the Applicable Standards.

4.5.5. The Company shall be responsible for the adequacy, stability, safety and performance of the Company's Obligations.

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4.5.6. The Company shall, whenever required by the Employer, submit details of the arrangements and methods which the Company proposes to adopt in carrying out the Company's Obligations. No significant alteration to these arrangements and methods shall be made without this having previously been notified to the Employer.

4.5.7. No review, non-objection, or approval by the Employer of any agreement, document, instrument, plan, drawing, specification or design proposed by the Company (inlcuding the Sub-Supplier and/or its Sub-Contractors) shall relieve the Company from any liability that it would otherwise have had for its negligence or default in the preparation of such agreement, document, instrument, plan, drawing, specification or design or failure to comply with Applicable Standards or to satisfy the Company's Obligations under this Agreement, except as otherwise specified in this Agreement. The Employer is not liable to the Company (including the Sub-Contractor and/ or the Sub-Supplier) or any other person by reason of its review, non-objection, or approval of any agreement, document, instrument, plan, drawing, specification, or design, except as otherwise specified in this Agreement.

4.5.8. If the Company becomes aware of a conflict between the Applicable Standards and other requirements set out in this Agreement, then the Company shall promptly notify the Employer and the Parties shall discuss in good faith and agree the manner in which the Company should execute and perform the Company's Obligations, provided that the Employer shall not be entitled to require the Company to act in breach of any Applicable Laws.

4.6. COMPANY'S REPRESENTATIVE

4.6.1. As part of the Company's performance of its obligations under this Agreement, during the Term, the Company shall designate one or more individual(s), each of whom shall function as the Company's single point of contact (the "**Company's Representative**"). The Company's Representative shall serve as a contact point to the Employer for matters pertaining to this Agreement. The Company may also utilize other Company's personnel and performance support methods in connection with performance of this Agreement.

4.6.2. The Company's Representative may change from time to time during the Term, provided that the Company shall have an individual at all times serving such a role regardless of the specific individual or job title used. The Company shall not replace Company's Representative without prior intimation to the Employer provided that prior to replacement of the outgoing Company's Representative, the Parties shall meet to address and minute any matters relating to the outgoing Company's Representative's activities in the Project.

4.6.3. The Company's Representative shall be an experienced and capable person and a full time employee of the Company dedicated to directing the execution and performance of the Company's Obligations and shall be available at all times.

4.6.4. The Company shall be fully and solely responsible to the Employer for any act, omission or error of the Company's Representative and other personnel as if they were an act, error or omission of the Company. The Company shall procure that the Company's Representative provides copies to the Company of all communications given or received by it in accordance with this Agreement.

4.7. UNFORESEEABLE DIFFICULTIES

4.7.1. Except as otherwise stated in this Agreement:

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(a) the Company shall be deemed to have obtained all necessary information as to potential risks, contingencies and other circumstances which may influence or affect the Company's Obligations;

(b) by signing this Agreement, the Company accepts total responsibility and risk for having foreseen all difficulties and costs of successfully completing the Company's Obligations; and

(c) the Bus Supply and O&M Fees shall not be adjusted to take account of any unforeseen difficulties or costs.

4.8. CONSENTS

4.8.1 During the Term, the Company will obtain and maintain, at its own cost and expense, all Consents. The Company will obtain all Consents within a reasonable time taking into account the Applicable Standards and the timelines for performance of its obligations under this Agreement.

4.8.2 Within ten (10) days of the Effective Date, the Company shall provide to the Employer a list of all Consents, clearly designating the issuing agency and the dates of issuance and expiration of all Consents, a copy of all permits, licenses, and approvals already issued and maintained by the Company and the Company's schedule for obtaining or renewing all Consents.

4.9. CHANGE IN COMPLETE CONTROL

4.9.1 The Company shall not undertake or permit any Change In Complete Control until the expiry of the Term, unless such Change In Complete Control:

(a) is required by any Applicable Laws or by the operation of the Applicable Laws or by order of a court, tribunal or government authority with appropriate jurisdiction: or

(b) is affected with the prior written approval of the Employer (subject to the receipt of necessary consents, permits or approvals and otherwise complying with all requirements under the Applicable Laws and terms of any contracts, licences, permits etc., applicable to the Company).

4.10. NON-FARE REVENUE PLAN

4.10.1. Within twenty (20) days from the Effective Date, the Company shall submit to the Employer a detailed plan for the matter pertaining to the collection of Non-Fare Revenue (the "**Non-Fare Revenue Plan**").

4.10.2. The Employer shall Notify the Company, within ten (10) days of its receipt of the proposed Non-Fare Revenue Plan, whether it:

(a) accepts such Non-Fare Revenue Plan; or

(b) shall propose amendments to the same. In the event the Employer proposes amendments to the proposed Non-Fare Revenue Plan, the Parties shall meet (within three (3) days of the Employer's proposal of such amendments) to discuss such amendments and to mutually agree on the same.

4.10.3. The Non-Fare Revenue Plan:

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..... *Company's Initials*

(a) submitted by the Company to the Employer and approved by the Employer in terms of Section 4.10.2(a) without any amendments; or

(b) submitted by the Company to the Employer, as amended as per the amendments proposed by the Employer that are mutually agreed between the Parties in accordance with Section 4.10.2(b);

shall be strictly complied with by the Company for collection of Non-Fare Revenue and the Company shall be fully responsible for the implementation of the Non-Fare Revenue Plan.

4.10.4. Any alteration to the Non-Fare Revenue Plan shall only be made by the Company with the prior written approval to the Employer.

4.10.5. The Company shall implement the Non-Fare Revenue Plan in accordance with the Applicable Standards.

4.11. AGREEMENTS RELATING TO NON-FARE REVENUE

4.11.1. Any agreement entered into by the Company in relation to the collection of the Non-Fare Revenue in accordance with the Non-Fare Revenue Plan, or any amendment thereof shall be subject to the prior approval of the Employer in respect of payment terms, scope of works and other technical matters to ensure, *inter alia*, conformity with the terms of the Non-Fare Revenue Plan (the **"Non-Fare Revenue Agreements"**).

4.11.2. All Non-Fare Revenue Agreements shall contain, in a form reasonably satisfactory to the Employer, the following provisions:

(a) an option to assign such Non-Fare Revenue Agreement in favour of the Employer upon expiry or termination of this Agreement pursuant to Section 11 (*Default and Termination*), provided, however, such assignment will be at no cost to the Employer; and

(b) all payments to the Company in terms of the Non-Fare Revenue Agreements including any rent, deposits, advances, fee, charges, penalties etc., be deposited by the counter-party directly to the Revenue Collection Account.

4.11.3. The Company shall deliver copies of the proposed Non-Fare Revenue Agreements or any amendment thereof and the Employer shall within fifteen (15) days communicate its approval or shall propose amendments to the same. In the event the Employer proposes amendments to the proposed Non-Fare Revenue Agreements, the Parties shall meet (within three (3) days of the Employer's proposal of such amendments) to discuss such amendments and to mutually agree on the same.

4.12. NON-FARE REVENUE

4.12.1. All revenue generated from implementation of the Non-Fare Revenue Plan including all payable amounts under the Non-Fare Revenue Agreements (the **"Non-Fare Revenue"**) shall be deposited directly in the Revenue Collection Account.

4.13. OPERATING COMMITTEE

4.13.1. The Company's Representative shall serve as a member of the Operating Committee and the Company shall procure that the Operator's Representative fulfils his role as member of the Operating Committee fully and in good faith.

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4.13.2. The Operating Committee shall have no power or authority to amend or modify the provisions of this Agreement or to determine the rights or obligations of the Company under this Agreement.

4.13.3. The terms of reference of the Operating Committee shall be mutually agreed between the Parties.

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5. SUPPLY OBLIGATIONS

5.1 MANNER OF EXECUTION

5.1.1 The Company shall carry out or cause to be carried out the design, production and manufacture of the Buses:

(a) in the manner specified in the Applicable Standards; and

(b) with properly equipped facilities and non-hazardous materials.

5.1.2 The Company shall procure the Goods from the Sub-Supplier and shall supply and deliver the same to the Delivery Point, in accordance with the Applicable Standards, provided that the Company shall be responsible for the acts, omissions, failure to perform or defaults of any Sub-Supplier, its agents or employees, as fully as if they were the acts, omissions or defaults of the Company, its agents or employees. The subcontracting by the Company of Supply Obligations to the Sub-Supplier shall not release or discharge the Company of any of its responsibilities or obligations under this Agreement.

5.2 CONCEPT BUS DESIGN

5.2.1 The Company shall within fourteen (14) days following the Effective Date, submit the concept design for the Buses (prepared in accordance with the Applicable Standards) to the Employer for approval ("**Concept Bus Design**").

5.2.2 Within seven (7) days of receipt, the Employer shall review the Concept Bus Design and shall either:

(a) approve the Concept Bus Design (the "**Approved Concept Bus Design**"); or

(b) reject the Concept Bus Design and convey its comments/observations (if any) to the Company.

5.2.3 In the event no approval or objections to the Concept Bus Design is granted in accordance with Section 5.2.2, the Concept Bus Design shall be deemed to be approved by the Employer.

5.2.4 The Company shall promptly (at its own cost and expense) re-submit the revised Concept Bus Design, no later than seven (7) days from receipt of the aforesaid observations under Section 5.2.2(b), and the approval process under this Section 5.2 *(Concept Bus Design)* shall be repeated.

5.3 DETAILED BUS DESIGN

5.3.1 The Company shall within seven (7) days of the Approved Concept Bus Design being approved by the Employer, submit its detailed design for the Bus (prepared in accordance with the Applicable Standards) to the Employer for approval ("**Detailed Bus Design**").

5.3.2 Within seven (7) days of receipt, the Employer shall review the Detailed Bus Design and shall either:

(a) approve the Detailed Bus Design (the "**Approved Detailed Bus Design**"); or

(b) reject the Detailed Bus Design and convey its comments/observations (if any) to the Company.

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5.3.3 In the event no approval or objections to the Detailed Bus Design is granted in accordance with Section 5.3.2, the Detailed Bus Design shall be deemed to be approved by the Employer.

5.3.4 The Company shall promptly (at its own cost and expense) re-submit the revised Detailed Bus Design, no later than seven (7) days from receipt of the aforesaid observations under Section 5.3.2(b), and the approval process under this Section 5.3 *(Detailed Bus Design)* shall be repeated.

5.4 PROTOTYPE TESTS

5.4.1 Within twenty eight (28) days of the Approved Detailed Bus Design being approved by the Employer, the Company shall: (i) ensure that a Prototype Buses are manufactured based on such Approved Detailed Bus Design; and (ii) carry out or cause to be caried out, the Prototype Tests on such Prototype Buses at the Test Location.

5.4.2 The Company shall provide all documentation and other information necessary for Prototype Tests and such assistance, driving tracks, labor, materials, stores, apparatus and instruments at the Test Location as are necessary to carry out such Prototype Tests efficiently.

5.4.3 The Company shall give the Third Party Expert and the Employer's Representative(s) two (2) weeks' preliminary notice of the time and Test Location for the testing of the Prototype Buses. The Third Party Expert and the Employer's Representative(s) shall be entitled to be present at the aforementioned Test Location for testing of the Prototype Buses.

5.4.4 Following successful completion of the Prototype Tests and issuance of the Third Party Expert's report on completion of the Prototype Tests, a certificate shall be issued by the Employer certifying the successful completion of the Prototype Tests ("**Prototype Tests Acceptance Certificate**"). It is hereby clarified that the Prototype Tests Acceptance Certificate shall only be considered issued for purposes of this Agreement after being countersigned by the Third Party Expert.

5.4.5 If while testing, the Prototype Buses or part thereof is found to be defective or otherwise not in accordance with this Agreement, the Employer may reject the Prototype Buses by giving notice to the Company, with reasons. The Company shall then promptly and in any case within two (2) days (or otherwise agreed with the Employer) make good the defects and ensure that the rejected item complies with this Agreement. Any such defects shall be remedied by the Company, at its sole cost and risk, without any extension to the timelines set out in the Schedule of Delivery.

5.4.6 If the Employer requires the Prototype Buses to be retested, the tests shall be repeated under the same terms and conditions.

5.4.7 The Company shall bear all fees, costs and expenses incurred (whether inside or outside Pakistan) for the purposes of attendance by Employer's Representative(s) (not exceeding a team of seven (7) persons) of the Prototype Tests. All living expenses, transport expenses and medical insurance of the Employer's Representatives shall be covered by the Company including (where Test Location is outside Pakistan) round trip economy air tickets to and from Pakistan. The Company shall facilitate the procurement of visas of the Employer's Representatives.

5.4.8 The Company shall also forward to the Employer's Representative duly certified reports of the Prototype Tests and copies of the data upon which the reports were based.

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5.4.9 During the Prototype Tests, the Employer's Representative's presence, inspection, examination, approval or similar act by the Employer's Representative (including the absence of disapproval) shall not relieve the Company from any of its duties, responsibilities or obligations under this Agreement.

5.4.10 Following issuance of the Prototype Tests Acceptance Certificate in respect thereof the Prototype Buses shall be delivered to the Delivery Point as part of each Batch of Goods and shall form part of the fleet being procured for the Project.

5.5 FINAL BUS DESIGN

5.5.1 The Company shall within seven (7) days of issuance of the Prototype Tests Acceptance Certificate, submit its final detailed design for the bus to the Employer for approval (**"Final Bus Design"**).

5.5.2 Within seven (7) days of receipt, the Employer shall review the Final Bus Design and shall either:

(a) approve the Final Bus Design (the "**Approved Final Bus Design**"); or

(b) reject the Final Bus Design and convey its comments/observations (if any) to the Company.

5.5.3 In the event no approval or objections to the Final Bus Design is granted in accordance with Section 5.5.2, the Final Bus Design shall be deemed to be approved by the Employer.

5.5.4 The Company shall promptly (at its own cost and expense) re-submit the revised Final Bus Design, no later than seven (7) days from receipt of the aforesaid observations under Section 5.5.2(b), and the approval process under this Section 5.5 *(Final Bus Design)* shall be repeated.

5.6 MANUFACTURE OF BUSES

5.6.1 Following issuance of the Approved Final Bus Design, the Employer shall submit an order for the Production Buses as specified in the Employer's Requirements (the "**Order**") on the order date (the "**Order Date**") to the Company to commence or cause to commence manufacturing of the Production Buses in accordance with the Approved Final Bus Design. The Company shall ensure timely manufacturing of the Production Buses so that the same are delivered by the Scheduled Commencement Date.

5.6.2 It is hereby clarified that the Company shall complete the design and prototype testing requirements under Section 5.1 to 5.5 above for both the 8.5 meter and 12 meter Buses simultaneously. Following the Employer placing Order for the Production Buses on the Order Date, delivery of the Production Buses will be in batches.

5.6.3 The Employer's Personnel shall at all reasonable times:

(a) have full access to all places where the Prototype Buses and Production Buses are being manufactured; and

(b) during design, production and manufacture be entitled to examine, inspect, measure and test the materials and workmanship, and to check the progress of the production and manufacture of the Prototype Buses and Production Buses.

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5.6.4 The Company shall give the Employer's Personnel full opportunity to carry out these activities, including providing access, facilities, permissions and safety equipment. No such activity shall relieve the Company from any obligation or responsibility.

5.7 OWNERSHIP OF GOODS

5.7.1 All Goods shall be imported in the name of the Employer. Each of the Goods shall, to the extent consistent with the Applicable Laws, become the property of the Employer upon the earlier of: (i) receipt of full payment against the same; or (ii) issuance of bill of lading for the Goods.

5.7.2 The Company warrants good title to all Goods and all parts thereof and to other tools, equipment, documents, materials and supplies furnished by the Company, the Sub-Supplier or their agents. The Company further guarantees that such title, when it passes to and vests in the Employer as described in this Section 5.7 (*Ownership of Goods*), will be free and clear of any and all liens, claims, charges, security interests, encumbrances and rights of other persons arising as a result of any actions or failure to act of the Company, the Sub-Supplier, or employees or representatives of either.

5.7.3 The Company shall have care, custody and control of, and shall bear the risk of physical loss and/or damage with respect to the Goods until delivery of the same at the Delivery Point and the issuance of the Certificate of Compliance in respect of each Batch of Goods.

5.8 INSPECTION AND ISSUANCE OF TPE CERTIFICATE OF COMPLIANCE

5.8.1 Prior to dispatch of each Batch of Goods, the Third Party Expert shall inspect such shipment of the Batch of Goods including: (i) Prototype Buses, to ensure that the buses being delivered are the same in respect of which the Prototype Tests Acceptance Certificates have been issued; (ii) Production Buses, to ensure that each Bus conforms with the Approved Final Bus Design; (iii) Spare Parts, to ensure that the Spare Parts meet the Applicable Standards; and (iv) set of tools and diagnostic equipment, to ensure that the tools and diagnostic equipment meets the Applicable Standards.

5.8.2 Following inspection of each Batch of Goods, the Third Party Expert shall either:

(a) issue certificate of compliance in respect of the entire Batch of Goods delivered, verifying that each of the Goods is in compliance with the requirements or standards prescribed under this Agreement including as specified under Section 5.8.1 (the "**TPE Certificate of Compliance**"); or

(b) issue certificate of rejection in respect of the entire Batch of Goods delivered, if the Third Party Expert determines (along with providing the reasons for rejection) that any of the Goods in the Batch of Goods is found to have any Defect or Deficiencies ("**Non-Compliant Goods**") (the "**TPE Certificate of Rejection**").

5.8.3 In the event of issuance of a TPE Certificate of Rejection, the Company shall remedy, replace, modify or make good any Defect or Deficiencies in the Non-Compliant Goods within fourteen (14) days (or such other number of days agreed between the Parties). Thereafter, the inspection procedure set out in this Section 5.8 (*Inspection and Issuance of TPR Certificate of Compliance*) shall be repeated for the Non-Compliant Goods and the TPE Certificate of Compliance shall be issued once all Goods in the Batch of Goods are accepted in accordance with Section 5.8.2(a).

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5.8.4 Any defect or deficiencies in the Non-Compliant Goods shall be remedied by the Company, at its sole cost and risk, without any extension for delay in achieving: (a) the Delivery Completion Date Phase I on or before the Scheduled Commencement Date Phase I; and (b) the Delivery Completion Date Phase II on or before the Scheduled Commencement Date Phase II.

5.9 INSPECTION AND ISSUANCE OF CERTIFICATE OF COMPLIANCE

5.9.1 Upon delivery of each Batch of Goods at the Delivery Point, the Employer shall inspect such shipment of the Batch of Goods including: (i) Prototype Buses, to ensure that the buses being delivered is the same in respect of which the Prototype Tests Acceptance Certificates have been issued; (ii) Production Buses, to ensure that each bus conforms with the Approved Final Bus Design; (iii) Spare Parts, to ensure that the Spare Parts meet the Applicable Standards; and (iv) set of tools and diagnostic equipment, to ensure that the tools and diagnostic equipment meets the Applicable Standards.

5.9.2 Following inspection of each Batch of Goods, the Employer shall either:

(a) issue certificate of compliance in respect of the entire Batch of Goods delivered, verifying that each of the Goods is in compliance with the requirements or standards prescribed under this Agreement including as specified under Section 5.9.1 (the "**Certificate of Compliance**"); or

(b) issue certificate of rejection in respect of the entire Batch of Goods delivered, if the Employer determines (along with providing the reasons for rejection) that any of the Goods in the Batch of Goods is found to have any Defect or Deficiencies ("**Defective Goods**") (the "**Certificate of Rejection**").

5.9.3 In the event of issuance of a Certificate of Rejection, the Company shall remedy, replace, modify or make good any Defect or Deficiencies in the Defective Goods within fourteen (14) days (or such other number of days agreed between the Parties). Thereafter, the inspection procedure set out in this Section 5.9 (*Inspection and Issuance of Certificate of Compliance*) shall be repeated for the Defective Goods and the Certificate of Compliance shall be issued once all Goods in the Batch of Goods are accepted in accordance with Section 5.9.2(a).

5.9.4 Any Defect or Deficiencies in the Defective Goods shall be remedied by the Company, at its sole cost and risk, without any extension for delay in achieving: (a) the Delivery Completion Date Phase I on or before the Scheduled Commencement Date Phase I; and (b) the Delivery Completion Date Phase II on or before the Scheduled Commencement Date Phase II.

5.10 QUALITY ASSURANCE

5.10.1 The Company shall institute a quality assurance system to demonstrate compliance with the requirements of this Agreement. The system shall be in accordance with the details stated in this Agreement and shall:

(a) demonstrate both recognition of the quality requirements of this Agreement and an organized approach to satisfy these requirements including the Applicable Standards;

(b) provide that quality requirements are determined and satisfied throughout all phases of performance of the Supply Obligations including as applicable design, purchasing, assembly, inspection, testing, delivery, storage and systems checks;

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(c) provide for the early and prompt detection of actual or potential deficiencies including Defects or Deficiencies, trends or conditions which could result in unsatisfactory quality and for timely and effective corrective action.

5.10.2 The Employer shall be entitled to audit any aspect of the system.

5.10.3 Compliance with the quality assurance system shall not relieve the Company of any of its duties, obligations or responsibilities under this Agreement.

5.11 TRANSPORT OF THE GOODS

5.11.1 The Company shall give the Employer not less than fourteen (14) days' notice of the date on which the Goods will be exported to Pakistan.

5.11.2 The Company shall be responsible for packing, loading, transporting all Goods and other things required to comply with the Supply Obligations.

5.11.3 The Goods shall be delivered by the Company to the Delivery Point.

5.12 SCHEDULE OF DELIVERY AND SCHEDULED COMMENCEMENT DATE

5.12.1 The Company shall ensure that:

(a) the delivery of the Goods is in accordance with the Schedule of Delivery;

(b) the Batch of Goods Phase I are delivered on or before the Scheduled Commencement Date Phase I; and

(c) the Batch of Goods Phase II are delivered on or before the Scheduled Commencement Date Phase II.

5.13 NOT USED

5.14 CARE AND SUPPLY OF SUPPLY DOCUMENTS

5.14.1 Each of the Supply Documents shall be in the custody and care of the Company, unless and until taken over by the Employer. Unless otherwise stated in this Agreement, the Company shall supply to the Employer six (6) copies of each of the Supply Documents within five (5) days of the Approved Final Bus Design being approved by the Employer.

5.14.2 The Company shall deliver to the Employer a copy of all publications referenced in the Employer's Requirements and the Supply Documents and shall maintain other communications given under this Agreement.

5.14.3 If a Party becomes aware of an error or defect of a technical nature in a document which was prepared for use under this Agreement, the Party shall promptly give notice to the other Party of such error or defect.

5.15 SUPPLY DOCUMENTS

5.15.1 The Supply Documents shall comprise the technical documents specified in the Employer's Requirements, documents required to satisfy all regulatory approvals, and Applicable Standards.

5.15.2 The Company shall prepare Supply Documents (including any other documents necessary to instruct the Company's Personnel), in English and in sufficient detail to satisfy the requirements of the Project.

Employer's Initials

Company's Initials

National Radio Telecommunication Corporation HARIPUR PAKISTAN

5.15.3 If the Employer's Requirements describe the Supply Documents which are to be submitted to the Employer for review, they shall be submitted accordingly, together with a notice as described below. In the following provisions of this Section: (i) "*review period*" means the period required by the Employer for review; and (ii) "*Supply Documents*" exclude any documents which are specified as not being required to be submitted for review.

5.15.4 Unless otherwise stated in this Agreement or the Employer's Requirements, each review period shall not exceed twenty (20) days, calculated from the date on which the Employer receives the Supply Documents and the Company's notice. This notice shall state that the Supply Document is considered ready, both for review in accordance with this Section and for use. The notice shall also state that the Supply Document complies with this Agreement, or the extent to which it does not comply.

5.15.5 The Employer may, within the review period, give notice to the Company that a Supply Document fails (to the extent stated) to comply with this Agreement. If a Supply Document so fails to comply, it shall be rectified, resubmitted in a complete form as per the requirements of the Employer (as applicable) and reviewed in accordance with this Section, at the Company's cost. In case of any resubmission, the review by the Employer shall be completed within twenty (20) days and thereafter all reviews of any subsequent resubmissions shall be completed by the Employer within fifteen (15) days.

5.15.6 For each part of the Supply, and except to the extent that the Parties otherwise agree:

(a) execution of such part of the Supply Obligations shall not commence prior to the expiry of the review periods for all the Supply Documents which are relevant to its execution;

(b) execution of such part of the Supply Obligations shall be in accordance with these Supply Documents, as submitted for review; and

(c) if the Company wishes to modify any document which has previously been submitted for review, the Company shall immediately give notice to the Employer. Thereafter, the Company shall submit revised documents to the Employer in accordance with the above procedure.

5.15.7 Any such agreement (under Section 5.15.6 above) or any review (under this Section or otherwise) shall not relieve the Company from any obligation or responsibility.

5.16 TECHNICAL STANDARDS AND REGULATIONS

5.16.1 The Supply Documents, the execution and the completion of Supply Obligations shall comply with and be in accordance with Applicable Standards, standards for environmental laws, applicable laws from the country of origin of the Goods, the Consents and other standards specified in the Employer's Requirements, applicable to the Supply Obligations, or defined by the Applicable Laws.

5.17 ERRORS IN SUPPLY DOCUMENTS

5.17.1 If errors, omissions, ambiguities, inconsistencies, inadequacies or other defects are found in the Supply Documents, then the Supply Documents and the Supply Obligations shall be corrected at the Company's cost, notwithstanding any consent or approval previously granted under this Agreement.

5.18 EMPLOYER'S USE OF SUPPLY DOCUMENTS

Employer's Initials

Company's Initials

5.18.1 As between the Parties, the Company shall retain the copyright and other intellectual property rights in the Supply Documents made by (or on behalf of) the Company.

5.18.2 The Company shall ensure that the Sub-Supplier grants a non-terminable transferable non-exclusive royalty-free licence in favour of the Employer to use the Sub-Supplier's technology and know-how (including the use of the Goods) to copy, use and communicate the Supply Documents, including making and using modifications of them. This licence shall:

(a) apply throughout the actual or intended working life (whichever is longer) of the Goods and authorize the Employer, as applicable, rights to use relevant patents, licenses and all such other similar rights which are required for operating, completing, maintaining, altering, adjusting, financing and repairing the relevant parts of the Buses;

(b) entitle any person in proper possession of the Goods to copy, use and communicate the Supply Documents for the purposes of operating, maintaining, altering, adjusting and repairing the Buses;

(c) in the case of Supply Documents which are in the form of computer programs and other software, permit their use on any computer and other places as envisaged by this Agreement, including replacements of any computers supplied by the Company; and

(d) continue to be in full force and effect notwithstanding cancellation or termination of this Agreement for whatever reason. Provided, that in case of early termination of this Agreement the subscription fees for the relevant software licenses for remaining useful life of Buses shall be payable by the Employer to the Sub-Supplier.

5.19 COMPANY'S USE OF EMPLOYER'S DOCUMENTS

5.19.1 As between the Parties, the Employer shall retain the copyright and other intellectual property rights in the Employer's Requirements and other documents made by (or on behalf of) the Employer. The Company may, at its cost, copy, use, and obtain communication of these documents for the purposes of this Agreement.

5.19.2 Such documents referred to in the preceding clause shall not, without the Employer's consent, be copied, used or communicated to a third-party by the Company, except as necessary for the purposes of this Agreement.

5.20 COMPANY'S CARE OF THE GOODS

5.20.1 The Company shall take full responsibility for the care of the Goods from the Order Date until the expiry of the Term.

5.20.2 If there is any loss or damage to the Goods or the Supply's Documents during the period when the Company is responsible for their care, the Company shall rectify the loss or damage at the Company's risk and cost, so that the Goods and Supply Documents conform with the requirements of this Agreement.

6. CONSTRUCTION WORKS

6.1 PREPARATION OF CONSTRUCTION DOCUMENTS

6.1.1 The Company shall prepare the Construction Documents in accordance with the Applicable Standards.

..... *Employer's Initials*

..... *Company's Initials*

National Radio & Telecommunication corporation HAVELIAN PAKISTAN

6.1.2 Defects and deficiencies, errors, omissions, ambiguities, inconsistencies, inadequacies and other defects in the Construction Documents or arising therefrom shall be rectified by the Company at its sole cost and risk.

6.1.3 The Employer and the Independent Expert (as applicable) may use the Construction Documents for such purposes as the same may require for the purposes of the Project.

6.1.4 The Company may at its discretion and subject to the Applicable Standards, propose with or without modifications the drawings and/or designs made available by the Employer or adopt its own Construction Documents after prior approval of the Independent Expert; provided, however, that the Company shall always remain solely responsible and liable for the adequacy and accuracy of the Construction Documents and shall not hold the Employer responsible or liable for the adequacy and / or the accuracy of the drawings provided by the Employer.

6.1.5 The Employer and the Independent Expert shall have the right to review and inspect all Construction Documents. The Company shall provide all such Construction Documents as may be reasonably required by the Employer and/or the Independent Expert to inspect the Construction Works. It is made clear that nothing in the above shall diminish the Company's responsibility to provide the Employer and the Independent Expert with sufficient information to enable the same to satisfy themselves regarding the Construction Works.

6.2 REVIEW & APPROVAL OF CONSTRUCTION DOCUMENTS

6.2.1 The Company shall within fifteen (15) days from the Effective Date, submit four (4) copies of the Construction Documents to the Independent Expert and the Employer, along with a confirmation that the Construction Documents are in compliance with the Applicable Standards.

6.2.2 Within fifteen (15) days of receipt, the Independent Expert and the Employer shall review the Construction Documents, and the Independent Expert (following consultation with the Employer), shall either:

(a) approve the Construction Documents; or

(b) reject the Construction Documents and convey their comments/observations (if any) to the Company.

6.2.3 In the event no approval or objections to the Construction Documents is granted in accordance with Section 6.2.2 above, the Construction Documents shall be deemed to be approved by the Independent Expert and the Employer.

6.2.4 The Company shall (at its own cost and expense) re-submit the revised Construction Documents no later than ten (10) days from receipt of the rejection and/or comments/observations under Section 6.2.2(b) above, and the approval process under this Section 6.2 *(Review & Approval of Construction Documents)* shall be repeated.

6.2.5 Notwithstanding anything contained herein, the Company shall:

(a) continue to be solely liable for: (i) the Company's Obligations and liabilities set out in this Agreement; and (ii) the Construction Documents including their compliance and conformity with the Applicable Standards, and shall not be relieved and/or absolved in any manner whatsoever of its obligations hereunder.

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Company's Initials

(b) the Company shall provide a copy of the approved Construction Documents to the Employer and the Independent Expert prior to commencement of Construction Works in accordance with the terms of this Agreement.

6.2.6 The Company shall be solely responsible and liable for achieving: (a) the Construction Completion Date Phase I on or prior to the Scheduled Commencement Date Phase I; and (b) the Construction Completion Date Phase I on or prior to the Scheduled Commencement Date Phase I, and the said obligation and liability of the Company shall not be reduced, negated, rescinded and/or waived by any delay and/or failure of the Independent Expert to fulfill its obligations as set out in this Section 6.2 *(Review & Approval of Construction Documents)*.

6.2.7 The approval granted by the Independent Expert under Clause 6.2.2 herein, shall be sufficient evidence of the fact that the Construction Documents are in compliance of the Applicable Standards, per the terms of this Agreement. As such, the Employer shall bear the cost and expense, if any, arising out of or in relation to any claim raised thereafter, by the Employer or the Independent Expert, with regards to, *inter alia*, non-compliance of Applicable Standards, insufficiency, error, or inadequacy of the Construction Documents.

6.3 SUBMISSION OF FINAL CONSTRUCTION DOCUMENTS PRIOR TO CONSTRUCTION COMPLETION DATE

6.3.1 With respect to: (a) Phase I within seven (7) days of the Construction Completion Date Phase I; and (b) Phase II within seven (7) days of the Construction Completion Date Phase II, the Company shall submit to the Employer the "as built" Construction Documents, duly verified and approved (in form and substance) by the Independent Expert, including "as built" survey, illustrating the layout of the Bus Depots and Bus Stations reflecting the same as actually designed, engineered and constructed.

6.3.2 The Construction Documents to be submitted by the Company pursuant to this Section 6.3 *(Submission of Final Construction Documents Prior to Construction Completion Date)* shall be in such form as may be requested by the Employer, including but not restricted to paper format (hard copies), digital format, micro films or any other format.

6.3.3 The Company shall amend, modify and update the Construction Documents from time to time during the Term (in each case following approval of the Independent Expert and the Employer) and carry out any amendments and modifications resulting from the operations, repairs, maintenance and other activities relating to the Operations and Maintenance.

6.4 CONSTRUCTION WORKS

6.4.1 The Company shall commence the Construction Works: (a) thirty (30) days following the Effective Date for Phase I; and (b) thirty (30) days following the Commencement Date Phase I for Phase II and hereby undertakes to perform and complete the same:

(a) in accordance with the Applicable Standards; and

(b) no later than the Scheduled Commencement Date Phase I for Phase I and Scheduled Commencement Date Phase II for Phase II.

6.4.2 Upon commencement of the Construction Works, the Company shall immediately Notify the Employer and the Independent Expert of the same.

6.4.3 The Company shall perform the Construction Works either itself, or through its Sub-Contractors. In the event the Construction Works are undertaken by its Sub-Contractors,

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the Company shall at all times remain solely responsible and liable for performance of its Sub-Contractors.

6.5 CONSTRUCTION INSPECTION

6.5.1 The Independent Expert and the Employer shall carry out periodic inspections to determine whether the Construction Works conform to the Applicable Standards (the "**Construction Inspection**") during each phase. The Construction Inspection shall be conducted at such time and frequency and in such manner as may be required by the Independent Expert and the Employer. At least thirty (30) days prior to the expected Commencement Date Phase I and/or Commencement Phase II, the Company, the Employer and the Independent Expert shall mutually agree on a date and time for final inspection of the Construction Works (the "**Final Inspection**").

6.5.2 If following Construction Inspection and/or Final Inspection it is determined that the Construction Works are not in accordance with the Applicable Standards (as determined by the Independent Expert) the Company shall be required to, within fifteen (15) days (or such other time period as agreed between the Parties) at its own cost and risk, rectify the Defects & Deficiencies in the Construction Works and/or the Bus Depots and/or Bus Stations that are identified in the Construction Inspection and/or Final Inspection until they conform to the Applicable Standards as verified by the Independent Expert.

6.5.3 The inspection by the Independent Expert shall not relieve or absolve the Company of its obligations and liabilities under this Agreement, and the Company shall remain liable for all Defects & Deficiencies regardless of whether the same are identified during Construction Inspection and/or Final Inspection.

6.6 CONSTRUCTION COMPLETION CERTIFICATE

6.6.1 If the Final Inspection is satisfactory as determined by the Independent Expert, then upon the Company's request, the Independent Expert shall (in consultation with the Employer), issue a Construction Completion Certificate specifying the Construction Completion Date Phase I and/or construction Completion Date Phase II.

6.6.2 Subject to the terms of this Agreement, the Company hereby guarantees that: (a) the Construction Completion Date Phase I shall occur on or before the Scheduled Commencement Date Phase II; and (b) the Construction Completion Date Phase II shall occur on or before the Scheduled Commencement Date Phase II.

6.7 TITLE TO CONSTRUCTION WORKS, BUS DEPOTS AND BUS STATIONS

6.7.1 Subject to the rights granted to the Company pursuant to this Agreement, the Employer shall retain all rights and title to the immovable properties, the Bus Stations and the Bus Depots throughout the Term. Subject to the terms of this Agreement, the Company has, and shall have, no title to, ownership interest in or lien over, the immovable properties, the Bus Stations and the Bus Depots nor shall it create any Encumbrance with respect thereto.

6.7.2 Furthermore, to ensure that the Employer retains all rights and title to the Bus Stations and the Bus Depots, following the Effective Date and as and when necessary, the Company shall execute such documents and other writings as the Employer may reasonably require for conveying and assigning all the rights and title in the Bus Stations and the Bus Depots, including manufacturers' warranties in respect of any equipment and/or materials provided and/or installed by the Company at the Bus Stations and the Bus Depots, the right to receive outstanding insurance claims to the Employer or its nominee.

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6.7.3 On the Handover Date, the Company shall handover the physical possession of Bus Stations and the Bus Depots to the Employer or a nominee thereof in accordance with the terms of this Agreement.

7. O&M SERVICES

7.1 O&M PLAN

7.1.1 Not later than:

(a) five (5) days after Effective Date, the Company shall prepare and submit to the Employer a detailed proposed operations, maintenance and management plan for the performance of the O&M Services during Phase I (the "**O&M Plan Phase I**"); and

(b) five (5) days after the Commencement Date Phase I, the Company shall prepare and submit to the Employer a detailed proposed operations, maintenance and management plan for the performance of the O&M Services during Phase II (the "**O&M Plan Phase II**").

The Company shall ensure that its proposed O&M Plan is consistent with the requirements of the Applicable Standards. The O&M Plan shall show all relevant information in relation to the anticipated performance of the O&M Services on a bi-annual basis during the Operating Period.

7.1.2 Within ten (10) days of its receipt of the relevant O&M Plan for each phase by the Employer, the Employer may either: (a) accept such O&M Plan; or (b) propose amendments to the same. In the event the Employer proposes amendments to the proposed O&M Plan, the Parties shall meet (within three (3) days of the Employer's proposal of such amendments) to discuss such amendments and to mutually agree on the same.

7.1.3 The O&M Plan:

(a) submitted by the Company to the Employer and approved by the Employer in terms of Section 7.1.2 without any amendments; or

(b) submitted by the Company to the Employer, as amended by the amendments proposed by the Employer that are mutually agreed between the Parties in accordance with Section 7.1.2;

shall be strictly complied with by the Company for the performance of the O&M Services and the Company shall commence and proceed with the implementation of the respective O&M Plan in accordance therewith.

7.1.4 Any alteration to the O&M Plan Phase I and/or O&M Plan Phase II respectively, shall only be made by the Company with the prior written approval of the Employer.

7.2 O&M PERSONNEL REQUIREMENTS

The Company shall ensure that adequate O&M Personnel (having the appropriate qualifications and training) are available during the Term for the execution of the Mobilization Period Requirements and the Company's Obligations.

7.3 RESPONSIBILITY FOR THE PERSONNEL & COVERED ASSETS

7.3.1 The Company shall be responsible for its O&M Personnel's health and safety requirements for the Company's Obligations performed by Company under this Agreement and shall ensure observance of requirements under the Applicable Standards.

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7.4 EMERGENCIES

7.4.1 In the event of an Emergency, the Company shall take such action as it reasonably considers necessary or desirable, acting in accordance with Prudent Industry Practices to prevent to minimise injury, damage or Loss; and shall promptly report to the Employer the nature of the Emergency and the action taken by the Company in response thereto and the Loss or damage caused. The Company may procure such spare parts and services as are reasonably required, acting in accordance with Prudent Industry Practices, in the circumstances to overcome any Emergency and, where such Emergency is not due to the Company, is not covered under Warranty (such as parts failure etc.), and also not mitigated by Project Insurance Policies obtained by the Employer or the Company that should have covered the loss, then:

(a) the Company shall use all reasonable endeavours to obtain the required services and/or spare parts at the reasonable price, having regard to the required delivery time, and shall remain entitled to invoice for Loss of Revenue for the period during which the Emergency occurs;

(b) provided, however, where the Emergency is caused due to the Company, then any Costs (less any insurance proceeds received by the Company in this regard under the Project Insurance Policies obtained by the Company) shall be to the account of the Company.

7.4.2 Unless the O&M Services are suspended by the Employer under Section 7.19 *(Suspension of O&M Services by the Employer),* the Company shall, during an Emergency Operate the Covered Assets within the Applicable Standards including Operations of the Buses in accordance with the Dispatch Schedule and Headway Targets. If an Emergency occurs or is in existence while the Covered Assets are undergoing or is about to commence a Planned Maintenance, the Company shall make all reasonable efforts to reschedule the Planned Maintenance or, if the Planned Maintenance has begun, expedite the completion of the work to restore Operations as soon as possible.

7.5 EMPLOYER AUTHORITY MATTERS

7.5.1 The Company shall be required to obtain written approval of the Employer prior to taking any action in relation to the following matters (the "**Employer Authority Matters**"):

(a) any alteration to the O&M Plan under Section 7.1.4;

(b) approve the Company's Representative in accordance with Section 4.6 *(Company's Representative)*;

(c) any alteration to the Dispatch Schedule and Headway Targets and/or the Dispatch Schedule and Headway Targets Change under Section 7.11 *(Dispatch Schedule and Headway Targets);*

(d) determine whether a replacement Bus is required to be provided in accordance with Section 7.15.2;

(e) any alteration to the Non-Fare Revenue Plan under Section 4.10.4;

(f) claiming any warranty from the Company in respect of the Buses in accordance with Section 12 (*Warranty*); and

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(g) assignment of any rights and obligations under this Agreement, including subcontracting of the Company's Obligations under Section 15.3 *(Subcontracting)*.

7.5.2 Within fifteen (15) days of receipt, the Employer shall consider the Company's request for the Employer's written approval in relation to any of the Employer's Authority Matters (the "**Company's Approval Request**") and shall either:

(a) approve the Company's Approval Request; or

(b) reject the Company's Approval Request and convey its comments/observations to the Company.

The Company shall (at its own cost and expense) re-submit the revised Company's Approval Request no later than ten (10) days from receipt of the rejection and/or comments/observations under Section 7.5.2(b) above, and the approval process under this Section 7.5.2 shall be repeated.

7.6 OPERATING RECORDS

7.6.1 The Company shall maintain full, complete and accurate records concerning the performance of all O&M Services (as mutually agreed between the Parties) and the provision of equipment, labour employed in respect of performance under this Agreement. Upon request of the Employer, the Company shall provide the Employer and/or the Employer's Representatives with access to review on twenty-four (24) hours' prior notice and/or a copy of such records promptly and no later than two (2) business days.

7.7 INSPECTION

7.7.1 During the Operating Period, the Company hereby gives the Employer and the Employer's Representative, full opportunity and access to inspect and examine the books, records, management system including inspection of the Covered Assets and the O&M Services being provided by the Company. Inspection will be carried out by the Employer and/or the Independent Expert, as and when deemed necessary by the Employer during the Operating Period.

7.8 COMPANY'S EQUIPMENT

7.8.1 The Company shall be responsible for at its own cost and retain title to any Company test equipment, washing plants, and other equipment, components, tools, sensors, instruments, systems or materials required by the Company for performance of the O&M Services and in connection with this Agreement (collectively the "**Company Equipment**"), whether remaining separate or attached to the Bus. The Company shall be responsible for transit costs and risk of Loss and insurance costs for such Company Equipment.

7.9 KEY PERFORMANCE INDICATORS

7.9.1 The Company hereby guarantees that it will comply with the Key Performance Indicators during the Operating Period.

7.9.2 The Key Performance Indicators may be reviewed, if required, periodically with the mutual consent of the Parties.

7.9.3 The performance by the Company of its obligations under the Agreement, including compliance with Key Performance Indicators, will be monitored, measured and evaluated by the Employer and the Independent Expert. Any discrepancies or non-compliances

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identified by the Employer and/ or the Independent Expert, if any, will be reported to the Company for corrective action in accordance with Section 7.9.4.

7.9.4 In the event of any discrepancy or non-compliance with respect to the Key Performance Indicators, the Company will be required within five (5) days or such additional time period as Notified by the Employer, or immediately in case of matters identified as urgent by the Employer and/or the Independent Expert, to provide assurance, to the satisfaction of the Employer and the Independent Expert, that the Company: (a) is acting in compliance with the Key Performance Indicators (along with supporting evidence); or (b) shall take all necessary actions to cure any discrepancy or non-compliance with Key Performance Indicators, to mitigate and prevent similar discrepancies or non-compliances arising in the future and at all times be compliant with the Key Performance Indicators.

7.9.5 Any corrective measures taken by the management of the Company in accordance with Section 7.9.4 will be immediately reported to the Employer and its Independent Expert. Thereafter, the Employer and/or the Independent Expert may in accordance with Section 7.9.4 undertake an audit to evaluate and report on status of achievement of Key Performance Indicators.

7.9.6 Notwithstanding anything contained in this Section 7.9, the Company shall not be liable for any Performance Liquidated Damages due in respect of the Key Performance Indicator during KPI Exemption Period.

7.10 PERFORMANCE LIQUIDATED DAMAGES DURING OPERATING PERIOD

7.10.1 If: (a) the Company fails to comply with any provision of this Agreement; or (b) any event or circumstance occurs that would give Employer a termination right under Section 11.2 *(Termination for Company's Default)*; or (c) the Company fails to comply with the Key Performance Indicators (each a "**Non-Compliance**") and if the Company does not cure such Non-Compliance within the later of fifteen (15) days or any other cure period Notified by the Employer or prescribed under this Agreement, the Employer may at its sole discretion deduct from sums payable under the Invoices and/or the Incentive Payment Invoices, as Performance Liquidated Damages and not as a penalty: (i) in the event of occurrence of a Non-Compliance under Section 7.10.1(a) and (b), an amount equal to PKR 20,000/- (Pakistani Rupees Twenty Thousand only) per event per day (subject to escalation by five percent (5%) in each Operating Year during the Operating Period); and (ii) in the event of occurrence of a Non-Compliance under Section 7.10.1(c), an amount described and calculated in accordance with **Schedule G** ***(Key Performance Indicators)***. The Performance Liquidated Damages payable under Section 7.10.1(i) and (ii) shall be calculated for each quarter during an Operating Year in which that Non-Compliance has occurred or continued for one or more days and deduct the accrued Performance Liquidated Damages from sums payable under the Invoices and/or the Incentive Payment Invoices upto the Performance Liquidated Damages Cap.

7.10.2 In the event that the Performance Liquidated Damages (by way of calculation) exceed the Performance Liquidated Damages Cap, the Employer shall have the option (to be exercised at its sole and absolute discretion) to terminate this Agreement in accordance with Section 11 *(Default and Termination)* and pursue its remedies set out therein and/or encash the Performance Security.

7.10.3 The Performance Liquidated Damages specified in Section 7.10.1 have been calculated by the Parties as representing the actual daily loss to the Employer as a result of any Non-Compliance and are not a penalty. Given the nature of the O&M Services to be performed by the Company, it is entirely possible to calculate the actual loss suffered by the Employer

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and the stated Performance Liquidated Damages in Section 7.10.1 and **Schedule G *(Key Performance Indicators)*** reflect such calculation. The Company agrees and acknowledges that the Performance Liquidated Damages are a reflection of actual loss suffered by the Employer.

7.11 DISPATCH SCHEDULE AND HEADWAY TARGETS

7.11.1 The Employer (through the Operations Control Centre) shall provide to the Company: (i) the initial Dispatch Schedule and Headway Targets, no later than fourteen (14) days prior to the Commencement Date Phase I; (ii) the subsequent Dispatch Schedule and Headway Targets, on a monthly basis no later than seven (7) days prior to the end of the calendar month for which it is intended to be implemented; and (iii) any change to the Dispatch Schedule and Headway Targets (the "**Dispatch Schedule and Headway Targets Change**") no later than seven (7) days prior to any Dispatch Schedule and Headway Target coming into effect.

7.11.2 The Employer shall ensure that the Dispatch Schedule and Headway Targets are issued throughout the Operating Period in accordance with this Agreement. In the event of any delay in the issuance of the Dispatch Schedule and Headway Targets for any month the Company shall be required to continue Operations in accordance with the last issued Dispatch Schedule and Headway Targets.

7.11.3 The Company shall be required to Operate the Buses in accordance with: (a) the Dispatch Schedule and Headway Targets; and (b) any Dispatch Schedule and Headway Targets Change, unless within two (2) days of receipt the Company requests the Employer for an alteration in the Dispatch Schedule and Headway Targets or the Dispatch Schedule and Headway Targets Change (as applicable). In its request, the Company shall:

(a) identify if compliance would have any impact on the Company, the O&M Services, or compliance with Key Performance Indicators; and

(b) certify that notwithstanding the use of all prudent commercial endeavours, the Company would be unable to meet the timetabled journey times,

provided, however, any such alteration in the Dispatch Schedule and Headway Targets or the Dispatch Schedule and Headway Targets Change (as applicable) shall only be made with the prior written approval of the Employer and notified as per timelines set out in Section 7.11.1.

7.12 DISPATCH SCHEDULE

7.12.1 The Company shall within three (3) days of receipt of: (a) the Dispatch Schedule and Headway Targets; and (b) any Dispatch Schedule and Headway Targets Change, prepare and submit to the Employer, the details of the dispatch of specific Buses and O&M Personnel including Drivers assigned for the Operations (the "**Dispatch Schedule**"). Thereafter, the Operations and scheduling of the Buses by the Company shall correspond to the Dispatch Schedule.

7.12.2 The Employer shall notify the Company, within two (2) days of its receipt of the proposed Dispatch Schedule, whether it: (a) accepts such Dispatch Schedule; or (b) shall propose amendments to the same. In the event the Employer proposes amendments to the proposed Dispatch Schedule, the Parties shall meet immediately to discuss such amendments and to mutually agree on the same (provided however, any alteration in the in the Dispatch Schedule and Headway Targets or the Dispatch Schedule and Headway Targets Change (as

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applicable) shall only be made with the prior approval of the Employer). The Parties are required to complete the review process and finalise the Dispatch Schedule no later than seven (7) days prior to its coming into effect.

7.12.3 The Dispatch Schedule:

(a) submitted by the Company to the Employer and approved by the Employer in terms of Section 7.12.2 without any amendments; or

(b) submitted by the Company to the Employer, as amended by the amendments proposed by the Employer that are mutually agreed between the Parties in accordance with Section 7.12.2;

shall be strictly complied with by the Company and the Company shall commence and proceed with the implementation of the Dispatch Schedule in accordance therewith.

7.13 COMPLIANCE MONITORING

7.13.1 The Employer shall (through the Operations Control Centre) track performance of the Buses for compliance with the Dispatch Schedule, Dispatch Schedule and Headway Targets and any Dispatch Schedule and Headway Targets Change.

7.14 OPERATION AND MAINTENANCE OF THE COVERED ASSETS

7.14.1 The Company shall ensure that: (a) the Bus Stations and Bus Depots are maintained at all times in a good, clean and orderly condition; and (b) all Planned Maintenance and Unplanned Maintenance is carried out in accordance with Applicable Standards.

7.14.2 The Company shall properly Operate and Maintain all Buses in accordance with the highest standards of care and prudence and the O&M Manuals. The Company shall cause the Buses to be operated only by qualified and experienced O&M Personnel. Furthermore, the Company shall (as part of the O&M Services) be responsible for: (a) timely execution of all repairs and provision of replacement parts for the Buses; (b) all scheduled overhauls of the Buses; and (c) maintenance of complete records of the O&M Services carried out in relation to the Buses.

7.15 ADDITIONAL BUSES

7.15.1 If the Employer deems it necessary to increase the Buses for the Project, for any reason whatsoever, the Employer shall proceed in accordance with Section 19.1.2 for procurement of such additional Buses (with similar specifications as set out in **Schedule A** ***(Company's Scope of Work and Employer's Requirements)*** except as may be agreed otherwise between the Parties). Subject to Section 19.1.2, the Employer reserves the right to increase the quantity of Buses by twenty percent (20%) of the Supply Cost to be Operated and Maintained on same terms and conditions (subject to any changes under Section 19.1.2) as specified in this Agreement.

7.15.2 The Company shall, during the Operating Period, immediately notify the Employer in writing of any Bus that has travelled 1.2 million kilometres and shall specifically state whether a replacement Bus is necessary. The Employer shall determine whether it believes such Bus is suitable to continue in operations or whether a replacement Bus is required. If the Employer determines that a replacement Bus is required, then it shall proceed in accordance with Section 19.1.2 for procurement of such replacement Bus.

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7.15.3 Any additional Production Buses procured under Section 7.15.1 and/or Section 7.15.2 shall be deemed to be in the Covered Assets and the Company shall be fully responsible for the same in accordance with the terms and conditions of this Agreement.

7.16 TRAINING AND SUPPLY OF SPARE PARTS

7.16.1 During the Term, the Company shall provide or cause to be provided training for Drivers and maintenance supervision as detailed in **Schedule A (*Company's Scope of Work and Employer's Requirements*)**, provided, that the Company shall continue to remain responsible for performance of all O&M Services including Maintenance of Buses and training of O&M Personnel as detailed in **Schedule A (*Company's Scope of Work and Employer's Requirements*)**.

7.16.2 The Company shall be (as part of the overall Company's Obligations) responsible for the supply and delivery of the Spare Parts throughout the Term. The Company shall ensure that all such Spare Parts comply with the Applicable Standards.

7.16.3 Within twenty (20) days (or such other number of days agreed between the Parties) from use of any Spare Parts by the Company in respect of: (i) Planned Maintenance and/or ordinary wear and tear; (ii) Unplanned Maintenance; and (iii) remedying of any Defect or Deficiencies or damage due to such Defect or Deficiencies, the Company shall replenish such Spare Parts used and consumed until the Performance End Date. The Company shall replenish and deliver such Spare Parts used at its own cost and expense.

7.16.4 The Company shall have care, custody and control of, and shall bear the risk of physical loss and/or damage with respect to the Spare Parts until the Performance End Date.

7.16.5 Any warranty claims from the Sub-Supplier's warranty during the Initial Maintenance Period shall be made through the Employer. Determination of whether any Defect or Deficiency during the Term is to be repaired and/or replaced: (a) by the Company as part of its O&M Services; or (b) through making a claim from Sub-Supplier under the manufacturer's warranty, shall be an Employer Authority Matter approved in accordance with Section 7.5 *(Employer Authority Matters)*.

7.17 PLANNED MAINTENANCE

7.17.1 The Company shall in planning and carrying out the Planned Maintenance, ensure that such Planned Maintenance:

(a) is (to the extent possible) without any interruption in the execution of the O&M Services and operation of the Buses as per the Dispatch Schedule and Headway Targets and the Dispatch Schedule; and

(b) does not result in any Non-Compliance with the Key Performance Indicators.

7.18 UNPLANNED MAINTENANCE

7.18.1 If, at any time during the Term, the Company is unable to provide any of the O&M Services on account of an Unplanned Maintenance it shall immediately Notify the Employer specifying the reasons for such Unplanned Maintenance and time required to complete the Unplanned Maintenance.

7.18.2 Thereafter, the Independent Expert shall at its sole discretion decide, following inspection (if necessary), whether the Unplanned Maintenance is due to the act, omission, wilful misconduct, negligence or breach under this Agreement of the Company.

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7.18.3 If the Independent Expert determines that the Unplanned Maintenance is:

(a) attributable to the Company, then the Employer may, at its sole discretion (i) impose Performance Liquidated Damages under Section 7.10 *(Performance Liquidated Damages During Operating Period)*; or (ii) terminate this Agreement in accordance with Section 11 *(Default and Termination)*. If the Unplanned Maintenance is determined to be attributable to the Company, the Company shall bear the full cost for the same; or

(b) not attributable to the Company, then Company shall be entitled to submit its claim for Costs and/or extensions in any timelines hereunder. The Employer shall then proceed in accordance with Section 3.5 *(Determinations)* to agree or determine any extensions in timelines and/or the Costs (if any) which the Company is entitled.

7.19 SUSPENSION OF O&M SERVICES BY THE EMPLOYER

7.19.1 The Company shall upon receipt of a notice from the Employer, suspend the O&M Services or any part thereof for such time or times and in such manner as the Employer may consider necessary, and shall during such suspension properly protect and secure the Covered Assets against any deterioration, loss and damage.

7.19.2 The Company shall recommence the O&M Services upon receipt of written notice from the Employer provided that during any period of suspension the Employer shall keep the Company advised as to the likelihood of its requiring the Company to recommence the O&M Services and shall give the Company reasonable notice of recommencement (taking into account the extent of training, re-training and mobilization likely to be required by the Company prior to recommencement of O&M Services including Operations of the Buses).

7.19.3 During any period of suspension (except to the extent such suspension is caused by the act or omission of the Company) the Company shall be entitled to receive the payments for the Loss of Revenue for the Operating Year during which suspension occurs. The Employer waives any and all right or claim to Performance Liquidated Damages for Non-Compliance with any Key Performance Indicators during and as result of any period of suspension (except to the extent such suspension is caused by the act or omission of the Company).

7.19.4 If suspension under Section 7.19 *(Suspension)*:

(a) has continued for more than sixty (60) calendar days in aggregate; and

(b) relate to the suspension of the entire O&M Services or result in the suspension of entire outstanding O&M Services; and

(c) is not due to a cause or reason attributable to the Company,

then, the Company may by Notice to the Employer's Representative require permission to proceed within thirty (30) calendar days. If permission is not granted within the aforementioned thirty (30) calendar days' time period, the Company will be entitled to terminate this Agreement under Section 11.1 *(Termination for Employer's Default)*.

7.20 COLLECTION OF REVENUE

7.20.1 During the Operating Period, the Company shall be authorized to demand and collect the Revenue from the passengers on the Buses, as per the requirements specified in **Schedule A (*Company's Scope of Work and Employer's Requirements*)**. All Revenue collected shall be, in the event of: (a) collection vide an electronic fare collection mechanism

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(including electronic tap-in cards), be deposited directly into the Revenue Collection Account; and (b) cash collection, such sums, be deposited within one (1) day of receipt/collection in the Revenue Collection Account. In no circumstances will the Company be permitted to deposit or retain the Revenue in any account other than the Revenue Collection Account.

7.20.2 During the Operating Period, the Company shall, no later than ten (10) days after the end of each Operating Year, furnish to the Employer and the Independent Expert, a report stating in reasonable detail the status of the Revenue collected from the Project and shall promptly give such other relevant information as may be required by the Employer and the Independent Expert.

7.21 INSURANCES

7.21.1 The Employer shall obtain and maintain the Project Insurance Policies set out in **Schedule K (*Insurance*)** in accordance with the requirements set out therein.

7.21.2 The Company shall obtain and maintain the: (a) Mobilization Period Insurances; and (b) Operating Period Insurances each as set out in **Schedule K (*Insurance*)** in accordance with the requirements set out therein.

7.22 ACCESS TO BUS DEPOTS AND BUS STATIONS

7.22.1 The Employer shall within fifteen (15) days from the Effective Date handover (free of Encumbrances) physical possession of the immovable properties being licensed to the Company for construction of the Bus Depots and the Bus Stations. However, the Company shall have a right to access to the immovable properties to carry out Company's Obligation from the Effective Date.

7.22.2 The grant of license for the Term and right to use the Bus Depots and the Bus Stations in respect of performance of the Company Obligations (including performance of Mobilization Period Requirements) by the Employer to the Company shall always be subject to the right of access of the Employer and the Employer's Representatives.

7.23 TRANSFER OF BUSES

7.23.1 On the expiry of the Term, the ownership of the Buses shall be transferred to the Company on terms and conditions (including payment of all due and payable Lease Payments) in accordance with Section 7.24 *(Lease Payment)* and the Lease to Own Agreement.

7.23.2 The Company shall bear and pay all costs and expenses, including stamp duties, taxes and legal fees to be incurred in connection with the transfer of the Buses in accordance with this Section 7.23 *(Transfer of Buses)*. In case of the Company's failure to do so, the Company agrees to indemnify and hold the Employer harmless against all penalties, damages, losses, costs, charges and expenses resulting from such failure and the Employer shall be entitled to set-off such costs from any sums due to the Company by the Employer under this Agreement.

7.24 LEASE PAYMENT

7.24.1 During the Lease Payment Period, the Lease Payments shall be payable by the Company for each Payment Period. The Lease Payment shall be set-off (in accordance with Section 8.3.1.3) by the Employer from the O&M Fee payable to the Company for each Payment Period

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7.24.2 The Lease Payment is an independent obligation of the Company under this Agreement and such Lease Payment shall remain payable for each Operating Year during the Lease Payment Period regardless of whether the Buses have been Operated and/or O&M Fee is payable in respect thereof. If the Lease Payment becomes subject to any tax (corporate tax, minimum tax or alternate corporate tax), the Company shall pay to the Employer such additional compensation (as determined by the Independent Expert) such that the net amount received by the Employer after deduction of any tax shall be equal to the total Lease Payment that would have been received had no such tax been paid or incurred.

7.24.3 Without prejudice to other rights and remedies of the Employer, if payments of Lease Payment due to the Company under the Invoice (for any Payment Period in the Operating Year) and/or the Incentive Payment Invoice (if any payable for the relevant Operating Year) are not sufficient to cover the Lease Payment, the Company shall pay the difference to the Employer within five (5) days of the Employer's demand failing which the Employer may recover the payable amount by encashing the Performance Security.

8. BUS SUPPLY AND O&M FEES AND OTHER PAYMENT TERMS

8.1 ADVANCE PAYMENT

8.1.1 Subject to receipt of the Advance Payment Security, the Employer shall pay the Advance Payment within ten (10) days from the opening of the Letter of Credit.

8.1.2 The Advance Payment forms part of the Supply Cost and is not an additional amount to the Supply Cost.

8.2 SUPPLY COST

8.2.1 The Supply Cost shall be payable as full and complete compensation for the Supply Obligations, subject only to adjustments in accordance with this Agreement, and payable in accordance with the terms of this Agreement. No payment to be made to the Company hereunder shall be deemed to constitute acceptance or approval of the Supply Obligations or any part thereof by the Employer and shall in no manner prejudice the Employer's right to dispute completion of the relevant Payment Milestone for which payment has been made.

8.2.2 The Supply Cost shall be payable for Supply of the Goods. The Supply Cost shall be invoiced and paid in accordance with Section 8.2.5 *(Timing and Mode of Payment for Supply Cost)*.

8.2.3 **Payment of Supply Cost**

The payments in respect of the Supply Cost shall be made by the Employer to the Company through the Letter of Credit; provided that, the Company shall be solely responsible for the submission of the relevant documents (and completion of such documents) required for the release of Supply Cost payments under the Letter of Credit.

8.2.4 **Application for Interim Payments for Supply Cost**

8.2.4.1 The Supply Cost shall be paid following completion of each Payment Milestone (or part thereof) specified in the Schedule of Payment Milestones in accordance with this Agreement.

8.2.4.2 Not Used

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8.2.4.3 The Company shall submit a maximum of two (2) Statements, in one (1) original each and five (5) copies each to the Employer's Representative, in a form approved by the Employer's Representative, setting out the relevant Payment Milestone(s) (or part thereof) that has been completed and the details of the amounts to which the Company is entitled together with supporting documents including:

(a) the Supply Cost to be paid against the Payment Milestone(s) (or part thereof) completed;

(b) any other additions or deductions which may have become due in accordance with this Agreement or otherwise, including those under Section 21 (*Dispute Resolution*); and

(c) the deduction of amounts included in previous Statements, if any.

8.2.4.4 Following completion or satisfaction of the Supply relating to the completed Payment Milestone, the Employer shall either:

(a) certify and approve the completion of the Supply relating to the completed Payment Milestone, in which case it shall issue its certificate of approval to the Company, stating that the Payment Milestone has been completed and setting out each part of the Supply completed (the "**Payment Milestone Completion Certificate**"); or

(b) reject the completion of the Supply relating to the relevant Payment Milestone, in which case it shall issue its certificate of rejection to the Company, stating that the Payment Milestone has been rejected and setting out each part of the Supply rejected (the "**Payment Milestone Rejection Certificate**") along with the reasons for rejection.

8.2.4.5 In the event of issuance of a Payment Milestone Rejection Certificate, the Company shall ensure that the relevant part of Supply relating to subject Payment Milestone is completed / reworked / modified and following such completion, the procedure set out in this Section 8.2.4 *(Application for Interim Payments for Supply Cost)* shall be repeated.

8.2.5 **Interim Payments for Supply Cost**

8.2.5.1 After the Payment Milestone Completion Certificate has been issued by the Employer's Representative, the Company shall submit: (i) the Statement; (ii) the supporting information submitted to the Employer's Representative pursuant to Section 8.2.4 *(Application for Interim Payments for Supply Cost)* and (iii) the Payment Milestone Completion Certificate, all in six (6) copies to the Employer.

8.2.5.2 Payments due shall not be withheld, except that:

(a) if any of the obligations relating to the Supply including anything supplied or work done by the Company is not in accordance with this Agreement, the cost of rectification or replacement may be withheld until rectification or replacement has been completed; and/or

(b) if the Company (including the Sub-Supplier) was or is failing to perform any obligations relating to the Supply or other obligations in accordance with this Agreement, and had been so notified by the Employer, the value of such work or obligation may be withheld until the said work or obligation has been performed.

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8.2.5.3 The Employer may, by any payment, make any correction or modification that should properly be made to any amount previously considered due. Payment shall not be deemed to indicate the Employer's acceptance, approval, consent or satisfaction.

8.2.6 **Schedule of Payment Milestones**

8.2.6.1 The Schedule of Payment Milestones and the amount of Supply Cost corresponding to each Payment Milestone, which amount is subject to adjustments pursuant to this Agreement (including Section 8.2.4 *(Application for Interim Payments for Supply Cost)* above) is set forth in the Schedule of Payment Milestones.

8.2.7 **Timing and Mode of Payments for Supply Cost**

8.2.7.1. The Supply Cost to be paid by the Employer in terms of this Agreement shall cover and include:

(a) The amount which is due in respect of each Statement, other than the Final Statement, within thirty (30) days after receiving the Statement, the supporting information submitted to the Employer's Representative pursuant to Section 8.2.4 *(Application for Interim Payments for Supply Cost)* and the Payment Milestone Completion Certificate.

(b) The amount due in respect of the Final Statement, within thirty (30) days after receiving the Statement, the supporting information submitted to the Employer's Representative pursuant to Section 8.2.4 *(Application for Interim Payments for Supply Cost)* and the Payment Milestone Completion Certificate and the written discharge from the Company in connection with Section 8.2.8 *(Application For Final Payment for Supply Cost)* and Section 8.2.9 *(Final Payment and Discharge for Supply Cost)*.

8.2.7.2 Payments of the Supply Cost shall be made for all Goods in PKR under the Letter of Credit. The Letter of Credit shall be established by the Employer within ten (10) days after the Effective Date, provided the Company has delivered to the Employer the Advance Payment Security in accordance with Section 9.1 (*Advance Payment Security*) and the Performance Security in accordance with Section 9.3 (*Performance Security*).

8.2.7.3 The Company shall open a USD letter of credit in favour of its Sub-Supplier (the "**USD Letter of Credit**"). The Employer will be the consignee under the USD Letter of Credit and all Goods pursuant to the USD Letter of Credit will be imported in the name of the Employer.

8.2.7.4 All claims under the Letter of Credit and payments in respect of the same through the Letter of Credit shall be in accordance with this Agreement.

8.2.7.5 No payment under the Letter of Credit shall be made, unless the following documents have been submitted by the Company to the LC issuing bank for:

(i) the Advance Payment:

(a) Statement (duly confirmed and countersigned by the Company); and

(b) copy of the Advance Payment Security.

(ii) every subsequent Payment Milestones (other than the Advance Payment) relating to the delivery of the Goods (as applicable):

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(a) Statement (duly confirmed and countersigned by the Company);

(b) Payment Milestone Completion Certificate;

(c) the supporting information submitted to the Employer's Representative pursuant to Section 8.2.4 *(Application for Interim Payments for Supply Cost)*; and

(d) all other documents reasonably required for payment, as stated in the Letter of Credit as mutually agreed by the Parties.

((a)-(d) above are together referred to as the "**LC Documents**").

8.2.7.6 Partial shipments shall be allowed under the Letter of Credit. Trans-shipment shall not be allowed.

8.2.7.7 All opening charges relating to the opening of the Letter of Credit shall be on the account of the Employer. However, if the Company requires the Letter of Credit to be confirmed, confirmation charges shall be borne by the Company.

8.2.7.8 All costs resulting from any extensions in the Letter of Credit due to reasons attributable to the Company shall be at the Company's account and risk.

8.2.7.9 Any payment made hereunder to the Company shall constitute full and final discharge and settlement of all moneys due to the Company for the Supply Cost for Supply Obligations and, thereafter, the Company (including any of its Sub-Suppliers) shall have no further claims against the Employer.

8.2.8 **Application for Final Payment for Supply Cost**

8.2.8.1 Within thirty (30) days after issuance of the Delivery Completion Certificate Phase II, the Company shall submit to the Employer, six (6) copies of a draft final statement with supporting documents showing detail in a form approved by the Employer:

(a) the value of the Supply delivered in accordance with this Agreement; and

(b) any further sums which the Company considers to be due under this Agreement or otherwise.

8.2.8.2 If the Employer disagrees with or cannot verify any part of the draft final statement it shall inform the Company, thereafter, the Company shall submit such further information as the Employer may reasonably require and shall make such changes in the draft as may be agreed between the Parties. The Company shall then prepare and submit to the Employer the final statement as agreed. This agreed statement is referred to in this Agreement as the "**Final Statement**".

8.2.8.3 However, if, following discussions between the Parties and any changes to the draft final statement which are agreed, it becomes evident that a dispute exists, the Employer shall pay the agreed parts of the draft final statement in accordance with Section 8.2.5 *(Interim Payments for Supply Cost)* and Section 8.2.7 *(Timing and Mode of Payments for Supply Cost)*.

8.2.8.4 Thereafter, if the dispute is finally resolved between the Parties under Section 21 *(Dispute Resolution)*, the Company shall then prepare and submit to the Employer a Final Statement.

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8.2.9 **Final Payment and Discharge for Supply Cost**

8.2.9.1 In accordance with Section 8.2.7.7(b), the Employer shall pay to the Company the Payment Milestone for the Delivery Completion Certificate Phase II in accordance with the Schedule of Payment Milestones, less all amounts previously paid by the Employer, all unpaid and due Delay Liquidated Damages under Section 2.6 *(Delay Liquidated Damages During Mobilization Period)* (if any) by the Company to the Employer and any deductions in accordance with Section 3.4 *(Employer's Claims)*.

8.2.9.2 When submitting the Final Statement, the Company shall submit a written discharge which confirms that the total of the Final Statement represents full and final settlement of all moneys due to the Company in respect of the Supply under or in connection with this Agreement.

8.2.10 **Cessation of Employer's Liability for Supply Cost**

8.2.10.1 The Employer shall not be liable to the Company for any matter or thing under or in connection with this Agreement or execution of any obligations relating to the Supply upon making the Final Payment in terms of Section 8.2.9 *(Final Payment and Discharge for Supply Cost)*.

8.2.10.2 However, this Section shall not limit the Employer's liability under its indemnification obligations.

8.3 <u>O&M FEES</u>

Subject to Section 8.3.1 (*Invoicing and Payment*), in consideration of the O&M Services performed by the Company during the Operating Period, the Employer shall pay the Company the Benchmark O&M Fee for each Operating Year.

8.3.1 **Invoicing and Payment**

8.3.1.1 The Company will submit invoices as follows:

(a) invoices for the O&M Fee by the second (2nd) day of every Payment Period for the previous Payment Period (the "**Invoice**"); and

(b) invoices for Incentive Payment (if payable as per Section 8.3.3.2) by the fifteenth (15th) day of the expiry of each Half-Yearly Period during an Operating Year (the "**Incentive Payment Invoice**").

8.3.1.2 All Invoices and the Incentive Payment Invoices will be in the name of the Employer who will solely be responsible for payment to the Company of the Payable Amounts.

8.3.1.3 No payments will be made by the Employer without submission of an Invoice and/or Incentive Payment Invoice in terms of Section 8.3.1.1.

8.3.1.4 Payments being made by the Employer hereunder shall be less: (a) any disputed amounts; (b) any deductions on account of tax; (c) any Revenue Shortfall; (d) Lease Payments (during Lease Payment Period); (e) any Liquidated Damages; (f) any Reconciliation Amounts; or (g) any other amounts due from the Company under this Agreement.

8.3.1.5 All due and payable amounts (subject to any deductions in accordance with Section 8.3.1.4) of: (a) the O&M Fees set out in the Invoices; and (ii) the Incentive Payment set out in the Incentive Payment Invoice (in each case the "**Payable Amount**"), shall within five

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(5) days of the Employer's receipt of the invoice be debited from the Revenue Collection Account and credited to the Company Payment Account as per the Standing Instructions (the "**Payment Date**").

8.3.1.6 Each payment being made by the Employer to the Company shall be subject to the continued validity of the Performance Security and Warranty Bond in terms of this Agreement.

8.3.1.7 If the Employer disputes any part of the invoiced amount, the Company shall re-submit to the Employer a revised invoice for the disputed amount taking into account objections raised. All disputed amounts shall become due and payable following resolution of the disputes.

8.3.1.8 All Payable Amounts will be paid in Pakistani Rupees.

8.3.2 **Establishment and Maintenance of the Revenue Collection Account and Issuance of the Standing Instructions**

8.3.2.1 The Employer is required to establish and maintain the Revenue Collection Account and issue irrevocable Standing Instructions in respect thereof.

8.3.2.2 The Employer shall establish and maintain the Revenue Collection Account at least ten (10) days prior to the anticipated Commencement Date Phase I and until the Performance End Date.

8.3.2.3 The Company shall establish and maintain the Company Payment Account at least ten (10) days prior to the anticipated Commencement Date Phase I and until the Performance End Date. Within two (2) days from the establishment of the Company Payment Account, the Employer shall issue irrevocable Standing Instructions containing, *inter alia*, instruction to the Revenue Collection Account Bank to debit the Revenue Collection Account on each Payment Date (upon receipt of an Independent Expert Certificate relating to such Payment Date) in an amount equal to the Payable Amount and credit the same to the Company Payment Account. The Employer shall at least two (2) days prior to each Payment Date provide the Independent Expert Certificate to the Revenue Collection Account Bank.

8.3.2.4 The Standing Instructions issued by the Employer shall be irrevocable and shall remain effective, in each case, until the Performance End Date, provided, however, the Standing Instructions (or any part thereof) may be revoked:

(a) pursuant to a written revocation Notice duly executed and confirmed by the authorized representatives of the Employer and the Company; or

(b) occurrence of any circumstances which entitle the Employer to termination under Section 11.2 *(Termination for Company's Default)*, irrespective of whether Notice of termination has been given.

8.3.2.5 The Standing Instructions may be amended at any time pursuant to a Notice issued by the Employer to the Revenue Collection Account Bank instructing amendment of the Standing Instructions (or any part thereof) and the same shall be confirmed and acknowledged by the Revenue Collection Account Bank, provided, that such Notice shall be only effective if the same is also duly signed by the authorized representatives of the Employer and the Company.

8.3.2.6 The Revenue Collection Account shall be strictly operated and maintained in accordance with the Standing Instructions.

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8.3.3 **Utilization of the Revenue**

8.3.3.1 All Revenue shall be collected and deposited in the Revenue Collection Account in accordance with Section 4.11.2 and Section 7.20.1. Such Revenue shall be utilized for the purposes of making payments of the Payable Amount to the Company in accordance with the Standing Instructions.

8.3.3.2 In the event the actual Revenue collected in any Half-Yearly Period is greater than the Half-Yearly Payable Amount (the "**Half-Yearly Excess Revenue**"), such Half-Yearly Excess Revenue (including any interest accrued on the Revenue Collection Account (if any)) shall be for the sole account of the Employer. Such Half-Yearly Excess Revenue shall be utilized by the Employer in its sole and absolute discretion including for making incentive payments to the Company calculated in accordance with Schedule P *(Reconciliation mechanism for Incentive Payments and O&M Fees)* (the "**Incentive Payments**"). Incentive Payments shall be invoiced and paid (subject to any deductions in accordance with Section 8.3.1.3) in accordance with the payment mechanism under Section 8.3.1 *(Invoicing and Payment)* and Section 8.3.2 *(Establishment and Maintenance of the Revenue Collection Account and Issuance of the Standing Instructions)*. Five (5) days after the expiry of each Operating Year, the Employer shall determine the excess revenue for the entire Operating Year being the sum equivalent to an amount of the actual Revenue collected greater than the Payable Amount for the Operating Year ("**Operating Year Excess Revenue**").

In the event the Employer has already paid the Incentive Payment for Half Yearly Periods in an Operating Year in excess of the Operating Year Excess Revenue then such excess sums (**Reconciliation Incentive Payment Amounts)** shall be deducted from subsequent payments of the O&M Fee in accordance with Section 8.3.1.4.

8.3.3.3 In the event the actual Revenue collected by the Company in any Half-Yearly Period and credited to the Revenue Collection Account is less than the Half-Yearly Payable Amount (being the O&M Fee payable for such Payment Period) (the "**Revenue Shortfall**"), such Revenue Shortfall shall be borne by the Company. In the event the Employer has already paid the Half-Yearly Payable Amounts for Half-Yearly Periods in the Operating Year in which a Revenue Shortfall arises, at the end of an Operatng Year, then sums equivalent to the Revenue Shortfall (to the extent already paid as Half-Yearly Payable Amounts) **(Reconciliation O&M Fee Amounts)** shall be deducted from subsequent payments of the O&M Fee in accordance with Section 8.3.1.4.

8.3.3.4 All reconciliation of O&M Fees and Incentive Payments shall be computed in accordance with Schedule P (*Reconciliation mechanism for Incentive Payment and O&M Fees*) and adjustment from the subsequent payments shall be made accordingly.

8.3.3.5 The Employer shall not be required or liable to fund any Revenue Shortfall.

8.4 CURRENCY OF PAYMENTS

8.4.1 All due and payable amounts under this Agreement will be paid in Pakistani Rupees.

8.5 DISPUTED INVOICES

8.5.1 If the Employer, on its own or on the recommendation of the Independent Expert, disputes the whole or any part of any Invoice and/or the Incentive Payment Invoice or supporting evidence issued by the Company, it shall immediately notify the Company and the

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Company shall issue a credit note thereafter together with two invoices, one in respect of the disputed amount and the second in respect of the amount not disputed. All disputed amounts shall become due and payable following resolution of the disputes.

8.5.2 The Employer shall pay the invoice in respect of the amount which is not in dispute and shall be entitled to withhold the amount which is in dispute pending resolution of the dispute.

8.5.3 The Employer and the Company shall use best efforts to resolve any dispute within ten (10) business days of the dispute arising.

8.5.4 If the Parties fail to resolve the dispute within such ten (10) business days, the matter shall be referred for dispute resolution in accordance with Section 21 (*Dispute Resolution*).

8.5.5 All payments under Section 8.3.1 *(Invoicing and Payment)* shall be subject to scrutiny by the Employer and/or its Independent Expert and in case of any error, discrepancy or deficiency in the Invoices and/or Incentive Payment Invoices, the same will be Notified to the Company and thereafter be adjusted against the next Invoice.

8.6 PAYMENT OF DELAY LIQUIDATED DAMAGES

8.6.1 Any amounts payable as Delay Liquidated Damages in accordance with Section 2.6 (*Delay Liquidated Damages During Mobilization Period*), may be: (i) set-off and deducted from Supply Cost payable by the Employer in accordance with Section 8.2 (*Supply Cost)*; or (b) recovered by encashing the Performance Security.

8.6.2 Notwithstanding encashment of the Performance Security or set-off and deduction of Delay Liquidated Damages from amounts payable under Section 8.2 (*Supply Cost)*, the Company shall continue to be responsible for performance of the Company's Obligations in accordance with this Agreement.

8.6.3 In case the Delay Liquidated Damages cannot be adjusted in terms of this Section 8.6 *(Payment of Delay Liquidated Damages)*, the Company shall continue to be liable to pay such amounts within fifteen (15) days of receipt of an invoice for the same issued by the Employer.

8.7 PAYMENT OF PERFORMANCE LIQUIDATED DAMAGES

8.7.1 Any amounts payable as Performance Liquidated Damages under Section 7.10 (*Performance Liquidated Damages During Operating Period*) may be: (a) set-off and deducted from sums payable under the Invoices and/or the Incentive Payment Invoices by the Employer to the Company in accordance with Section 8.3 (*O&M Fees*); or (b) recovered by encashing the Performance Security and/or the Warranty Bond.

8.7.2 Notwithstanding encashment of the Performance Security and/or Warranty Bond or set-off and deduction of Performance Liquidated Damages from amounts payable under Section 8.3 (*O&M Fees*), the Company shall continue to be responsible for performance of the Company's Obligations in accordance with this Agreement.

8.7.3 In case the Performance Liquidated Damages cannot be adjusted in terms of this Section 8.7 *(Payment of Performance Liquidated Damages)*, the Company shall continue to be liable to pay such amounts within fifteen (15) days of receipt of an invoice for the same issued by the Employer.

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8.8 TAXES AND DUTIES

8.8.1 The Bus Supply and O&M Fees includes the Company Taxes and the Company shall be responsible for, and shall pay directly, any and all Company Taxes.

8.8.2 The Employer shall be responsible for and shall pay, all the Employer's Taxes.

8.8.3 If, however after the Effective Date, there is any change (increase or decrease) in the Company's Taxes, other than: (i) a change in income tax /withholding income tax applicable on the Company: (ii) any associated custom and import duties for clearance of imported Goods from the port in the Sub-Supplier's country ((i) and (ii) above collectively referred to as the "**Excluded Taxes**"), the same shall be dealt with in the following manner:

(a) if there is an increase in any applicable Company's Taxes (other than the Excluded Taxes) which are final and/or non-reimbursable and/or non-adjustable, the Company shall notify the Employer of such increase and provide evidence thereof along with the proposed increase in the Supply Cost and / or the O&M Fees, as applicable, as a consequence thereof. Within fifteen (15) days of receiving the Company's notification, the Employer shall review the same and shall revise the Supply Cost and / or the O&M Fees, as applicable, to the extent of the increase in Company's Taxes as per the Applicable Law; and

(b) if there is a decrease in any applicable Company's Taxes (other than the Excluded Taxes) which are final and/or non-reimbursable and/or non-adjustable, the Company or the Employer shall notify the other Party of such decrease and provide evidence thereof along with the proposed decrease in the Supply Cost and / or the O&M Fees as a consequence thereof. Within fifteen (15) days of receiving such notification, the notified Party shall review the same and shall revise the Supply Cost and / or the O&M Fees to the extent of the decrease in Company's Taxes as per the Applicable Law.

8.8.4 The Company shall at all times be required to seek and avail all exemptions or reduced rates of taxes, levies and duties, and the Employer shall also retain the right to require the Company to seek and avail all such available exemptions in the knowledge of the Employer from time to time. In the event of failure of the Company to avail any such benefit of exemption or reduction in taxes, levies and duties, the Employer shall be entitled to adjust the payments to be made by the Employer to the Company by taking into account that the Company has availed the aforesaid benefit.

8.8.5 The Company hereby agrees to indemnify, defend and hold the Employer harmless from any and all taxes, liabilities, damages, costs, penalties, fines, expenses, fees (including attorney's fees) and charges of any nature associated with any non-compliance and violations by the Company of this Section 8.8 *(Taxes and Duties)* including the consequences of any failure to pay the Company's Taxes as required by all Applicable Laws, in relation to the Company's Obligations.

8.9 FUEL INDEXATION

8.9.1 During each month of an Operating Year, in the event the Actual Fuel Price: (a) increases by more than five percent (5%) from the Base Fuel Price, the Employer shall pay fuel adjustment to the Company in an amount equivalent to sum more than five percent (5%) from the Base Fuel Price and the cost of fuel upto five percent (5%) from the Base Fuel Price shall be borne by the Company; and (b) reduces by less than five percent (5%) from

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the Base Fuel Price, the Employer shall recover the amount of fuel adjustment from the Company, in accordance with the mechanism set out in Schedule V (*Fuel Price Indexation*).

8.10 LATE PAYMENT

8.10.1 Either Party shall pay interest on all amounts not timely paid in accordance with this Agreement at KIBOR plus two percent (2%) per annum, compounded semi-annually, calculated for the actual number of days which the relevant amount remains unpaid on the basis of a three hundred and sixty-five (365) day year.

9. COMPANY SECURITIES

9.1 ADVANCE PAYMENT SECURITY

9.1.1 Within twenty-five (25) days of the Effective Date and during the Mobilisation Period Phase I, the Company shall deliver to the Employer the Advance Payment Security in the amount of fifty percent (50%) of the Supply Cost. The Advance Payment Security shall come into force and shall become automatically effective upon payment of the Advance Payment by the Employer. The Advance Payment Security shall be encashable in accordance with the terms thereof and shall be payable on the Employer's first written demand without any prior notice, reference or recourse to the Company for encashment. The receipt by the Employer of the Advance Payment Security is also a condition precedent to the Employer's obligation to make any payments under this Agreement. The Company shall adjust the Face Value of the Advance Payment Security either upwards or downwards in the event that the Supply Cost is required to be changed by the addition or deduction to ensure that the Face Value of the Advance Payment Security remains equivalent to fifty percent (50%) of the revised Supply Cost.

9.1.2 The Company shall ensure that the Advance Payment Security is valid and enforceable (without further action) from the date of issuance until the entire Supply Cost has been paid by the Employer to the Company. If the Advance Payment Security is subject to an expiry date (the "**Advance Payment Security Original Expiry Date**"), and the Supply Cost has not been paid in full by Employer, then, the date twenty-eight (28) days prior to the Advance Payment Security Original Expiry Date, the Company shall extend the validity of the Advance Payment Security twenty-eight (28) days prior to the Advance Payment Security Original Expiry Date so as to keep it valid and enforceable and, thereafter, the Company shall continue extending the Advance Payment Security in such manner to ensure that it is valid at all times until the date of issuance of Compliance of Certificate. In the event of failure by the Company to extend the validity of the Advance Payment Security in accordance with this Section, the Employer shall have the right to encash the Advance Payment Security to its full outstanding value.

9.1.3 [Not used].

9.1.4 In the event of early termination under Section 11.1 (*Termination for Employer's Default*), Section 11.2 (*Termination for Company's Default*) or Section 18 (*Force Majeure*) (as the case may be), the whole of the balance outstanding Advance Payment shall immediately become due and payable by the Company to the Employer for which the Employer shall have the right to draw upon the Advance Payment Security.

9.1.5 The Employer shall not make a demand under the Advance Payment Security, except for amounts to which the Employer is entitled under this Agreement in the event of:

(i) failure by the Company to keep the Advance Payment Security valid or extend the

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validity of the Advance Payment Security as described in Section 9.1.2 above, in which event the Employer may claim the full amount of the Advance Payment Security;

(ii) failure by the Company to pay the Employer:

(A) Delay Liquidated Damages within fifteen (15) days after the date of the delivery of the relevant invoice to the Company; and/or

(B) an amount due which has either been agreed by the Company herein (other than the Delay Liquidated Damages set out in (A) above) or determined under Section 3.4 (*Employer's Claims*) within twenty-eight (28) days after such agreement or determination.

(iii) in case the credit rating of the Advance Payment Security or the issuing bank (in either case) falls below the Minimum Credit Rating and the Company is unable to provide a substitute Advance Payment Security in accordance with Section 9.1.8, then the Employer may claim the full amount of the Advance Payment Security;

(iv) material breach by the Company of any of the Company's Obligations which remains unremedied for a period of seven (7) days from the date of the notice of such Material Breach;

(v) circumstances which entitle the Employer to termination under Section 11.2 (*Termination for Company's Default*), irrespective of whether notice of termination has been given; and/or

(vi) any other event, circumstance or provision stated under this Agreement which entitles the Employer to make a demand under the Advance Payment Security.

9.1.6 To the extent the Employer was not entitled to a claim under the Advance Payment Security and yet received monies in relation to the same, the Employer shall reimburse (subject to any final settlement/judgment under the dispute resolution mechanism set out herein) the Company any such amounts within fourteen (14) days of the Employer's receipt of a written demand from the Company.

9.1.7 The Employer shall return the Advance Payment Security to the Company within twenty-eight (28) days after the Final Compliance Certificate for Goods, **provided that**, no event is subsisting that entitles the Employer to make a demand under the Advance Payment Security nor are there any outstanding claims by the Employer under the Advance Payment Security.

9.1.8 Where, at any time subsequent to the issuance of the Advance Payment Security, the Advance Payment Security issuing bank (as specified in the definition of Advance Payment Security above) or the Advance Payment Security fails to meet the Minimum Credit Rating, then, upon the instructions of the Employer, the Company shall, within ten (10) days of receipt of such instructions from the Employer, procure from a bank or financial institution, which meets the Minimum Credit Rating, satisfactory to the Employer a substitute Advance Payment Security for the amount prevailing as of that date. Upon receipt of such substitute Advance Payment Security in the form and substance satisfactory to the Employer, the Employer shall return the earlier issued Advance Payment Security to the Company.

9.2 MAINTENANCE PERFORMANCE GUARANTEE

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ISLAMABAD
PAKISTAN

9.2.1 Within five (5) days prior to the issuance of Certificate of Compliance for Batch of Goods Phase II, the Company shall deliver to the Employer the Maintenance Performance Guarantee in the amount of two percent (2%) of the Supply Cost. The Maintenance Performance Guarantee shall be encashable in accordance with the terms thereof and shall be payable on the Employer's first written demand without any prior notice, reference or recourse to the Company for encashment. The Company shall adjust the Face Value of the Maintenance Performance Guarantee either upwards or downwards in the event that the Supply Cost is required to be changed by the addition or deduction to ensure that the Face Value of the Maintenance Performance Guarantee remains equivalent to two percent (2%) of the revised Supply Cost.

9.2.2 The Company shall ensure that the Maintenance Performance Guarantee is valid and enforceable (without further action) from the date of issuance until the expiry of Initial Maintenance Period. If the Maintenance Performance Guarantee is subject to an expiry date (the "**Maintenance Performance Guarantee Original Expiry Date**") which occurs prior to the expiry of Initial Maintenance Period, then twenty-eight (28) days prior to the Maintenance Performance Guarantee Original Expiry Date, the Company shall extend the validity of the Maintenance Performance Guarantee twenty-eight (28) days prior to the Maintenance Performance Guarantee Original Expiry Date so as to keep it valid and enforceable and, thereafter, the Company shall continue extending the Maintenance Performance Guarantee in such manner to ensure that it is valid at all times until the expiry of Initial Maintenance Period. In the event of failure by the Company to extend the validity of the Maintenance Performance Guarantee in accordance with this Section, the Employer shall have the right to encash the Maintenance Performance Guarantee to its full outstanding value.

9.2.3 In the event of failure by the Company to keep valid, extend the validity of or provide a new Maintenance Performance Guarantee in accordance with this Section 9.2 *(Maintenance Performance Guarantee)*, the Employer shall have the right to encash the Retention Payment Guarantee to its full outstanding value, provided however, when the Employer has encashed the Maintenance Performance Guarantee in terms of this Section 9.2.3, the Employer shall refund the encashed proceeds to the Company upon the Company establishing and furnishing to the Employer a new Maintenance Performance Guarantee in accordance with Section 9.2 *(Maintenance Performance Guarantee)*.

9.2.4 The Employer may make a demand under the Maintenance Performance Guarantee in the event of:

(a) failure by the Company to keep the Maintenance Performance Guarantee valid or extend the validity of the Maintenance Performance Guarantee as described in Section 9.2.3 above, in which event the Employer may claim the full amount of the Maintenance Performance Guarantee;

(b) failure by the Company to pay the Employer an amount due including any Liquidated Damages or determined under Section 21 *(Dispute Resolution)*, within fourteen (14) days after such agreement or determination;

(c) material breach by the Company of any Company's Obligations which remains unremedied for a period of seven (7) days from the date of the notice of such Material Breach;

(d) circumstances which entitle the Employer to termination under Section 11.2 *(Termination for Company's Default)*, irrespective of whether Notice of termination has been given;

(e) failure by the Company to remedy a Defect or Deficiency (subject to any grace period permitted by the Employer or otherwise specified in this Agreement) after

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receiving the Employer's Notice requiring the Defect or Deficiency to be remedied (provided that such default is capable of remedy); and/or

(f) any other event, circumstance or provision stated under this Agreement which entitles the Employer to make a demand under the Maintenance Performance Guarantee.

9.1.9 The Employer shall return the Maintenance Performance Guarantee to the Company within twenty-eight (28) days after the expiry of Initial Maintenance Period, provided that, no event is subsisting that entitles the Employer to make a demand under the Maintenance Performance Guarantee nor are there any outstanding claims by the Employer under the Maintenance Performance Guarantee.

9.2.5 Where, at any time subsequent to the issuance of the Maintenance Performance Guarantee, the Maintenance Performance Guarantee issuing bank (as specified in the definition of Maintenance Performance Guarantee above) or the Maintenance Performance Guarantee fails to meet the Minimum Credit Rating, then, upon the instructions of the Employer, the Company shall within ten (10) days of receipt of such instructions from the Employer, procure from a bank or financial institution, which meets the Minimum Credit Rating, a substitute Maintenance Performance Guarantee for the amount prevailing as of that date. Upon receipt of such substitute Maintenance Performance Guarantee in the form and substance satisfactory to the Employer, the Employer shall return the earlier issued Maintenance Performance Guarantee to the Company.

9.3 PERFORMANCE SECURITY

9.3.1 Prior to the Effective Date, the Company has delivered to the Employer, the Performance Security, in the amount of five percent (5%) of the Benchmark O&M Fee for the first Operating Year (as specified by the Employer in Schedule N *(Benchmark O&M Fee)*. The Performance Security shall be encashable in accordance with the terms thereof and shall be payable on the Employer's first written demand without any prior notice, reference or recourse to the Company for encashment. The Company shall ensure that the Face Value of the Performance Security is adjusted either upwards or downwards to ensure that the Face Value of the Performance Security remains equivalent to: (i) five percent (5%) of the Benchmark O&M Fee for the first Operating Year (as specified by the Employer in Schedule N *(Benchmark O&M Fee)* until the Commencement Date Phase I; and (ii) five percent (5%) of the Benchmark O&M Fee for the relevant Operating Year (as specified by the Employer in Schedule N *(Benchmark O&M Fee)* (for each Operating Year) from the Commencement Date Phase I till the Release Date.

9.3.2 The first Performance Security shall be valid for twelve (12) months following its issuance (the "**Performance Security Expiry Date**"). Twenty-eight (28) days prior to each Performance Security Expiry Date, the Company shall extend the validity of each Performance Security for a further period of twelve (12) months or replace the Performance Security with a new Performance Security valid for a period of twelve (12) months, effective in each case upon expiry of the last Performance Security. The Performance Security to be established in the last Operating Year shall be maintained until the date falling ten (10) days after the Employer's issuance of the Release Certificate. Each Performance Security shall be valid and enforceable until its expiry.

9.3.3 In the event of failure by the Company to keep valid, extend the validity of or provide a new Performance Security in accordance with this Section 9.3 *(Performance Security)*, the Employer shall have the right to encash the Performance Security to its full outstanding value, provided however, when the Employer has encashed the Performance Security in

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terms of this Section 9.3.3, the Employer shall refund the encashed proceeds to the Company upon the Company establishing and furnishing to the Employer a new Performance Security in accordance with Section 9.3 *(Performance Security)*.

9.3.4 The Employer may make a demand under the Performance Security in the event of:

(a) failure by the Company to keep the Performance Security valid or extend the validity of the Performance Security as described in Section 9.3.3 above, in which event the Employer may claim the full amount of the Performance Security;

(b) failure by the Company to pay the Employer an amount due including any Liquidated Damages or determined under Section 21 *(Dispute Resolution)*, within fourteen (14) days after such agreement or determination;

(c) material breach by the Company of any Company's Obligations which remains unremedied for a period of seven (7) days from the date of the notice of such Material Breach;

(d) circumstances which entitle the Employer to termination under Section 11.2 *(Termination for Company's Default)*, irrespective of whether Notice of termination has been given;

(e) any claims that the Employer may have up to the Performance End Date;

(f) failure by the Company to remedy a Defect or Deficiency (subject to any grace period permitted by the Employer or otherwise specified in this Agreement) after receiving the Employer's Notice requiring the Defect or Deficiency to be remedied (provided that such default is capable of remedy); and/or

(g) any other event, circumstance or provision stated under this Agreement which entitles the Employer to make a demand under the Performance Security.

9.3.5 The Employer shall return the Performance Security to the Company within twenty-eight (28) days after the Performance End Date, provided that, no event is subsisting that entitles the Employer to make a demand under the Performance Security nor are there any outstanding claims by the Employer under the Performance Security.

9.3.6 Where, at any time subsequent to the issuance of the Performance Security, the Performance Security issuing bank (as specified in the definition of Performance Security above) or the Performance Security fails to meet the Minimum Credit Rating, then, upon the instructions of the Employer, the Company shall within ten (10) days of receipt of such instructions from the Employer, procure from a bank or financial institution, which meets the Minimum Credit Rating, a substitute Performance Security for the amount prevailing as of that date. Upon receipt of such substitute Performance Security in the form and substance satisfactory to the Employer, the Employer shall return the earlier issued Performance Security to the Company.

9.4 WARRANTY BOND

9.4.1 The Warranty Bond, in the amount of five percent (5%) of the Supply Cost (following adjustment on Order Date (if any) and, thereafter, on the expiry of the Initial Maintenance Period), shall be submitted by the Company thirty (30) days prior to the earlier of the: (a) actual Delivery Completion Date Phase I; or (b) Scheduled Commencement Date Phase I and shall be effective on the Delivery Completion Date Phase I. The Warranty Bond shall be encashable in accordance with the terms thereof and shall be payable on the Employer's

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first written demand without any prior notice, reference or recourse to the Company for encashment. The Company shall ensure that the Face Value of the Warranty Bond is adjusted either upwards or downwards to ensure that the Face Value of the Warranty Bond remains equivalent to: (i) five percent (5%) of the Supply Cost until expiry of the Initial Maintenance Period; and (ii) two point five percent (2.5%)] of the Supply Cost from the expiry of the Initial Maintenance Period till the Release Date.

9.4.2 The Company shall ensure that the Warranty Bond is valid and enforceable (without further action) from the date of issuance until twenty-eight (28) days after the anticipated Release Date. If the terms of the Warranty Bond specify its expiry date (the "**Warranty Bond Original Expiry Date**") and the Company has not received the Release Certificate by the date falling twenty-eight (28) days prior to the Warranty Bond Original Expiry Date, the Company shall procure the extension of the validity of the Warranty Bond twenty-eight (28) days prior to the Warranty Bond Original Expiry Date so as to keep it valid and enforceable up to at least twenty-eight (28) days after the then anticipated Release Date and thereafter the Company shall ensure that the Warranty Bond continues to extend in such manner to ensure that it is valid at all times until twenty-eight (28) days after the Release Date.

9.4.3 The Employer shall not make a demand under the Warranty Bond, except for amounts to which the Employer is entitled under this Agreement in the event of:

(i) failure by the Company to keep the Warranty Bond valid or extend the validity of the Warranty Bond as described in paragraph 9.4.2 above in which event the Employer may claim the full amount of the Warranty Bond;

(ii) in case the credit rating of the Warranty Bond issuing bank falls below the Minimum Credit Rating and the Company is unable to provide a substitute Warranty Bond in accordance with Section 9.4.6, then the Employer may claim the full amount of the Warranty Bond;

(iii) failure by the Company to pay the Employer:

(A) Liquidated Damages within fifteen (15) days after the date of the delivery of the relevant invoice to the Company; and/or

(B) an amount due which has either been agreed by the Company herein (other than the Liquidated Damages set out in (A) above) or determined under Section 3.4 *(Employer's Claims)* within twenty-eight (28) days after such agreement or determination;

(iv) material breach by the Company of any Company's Obligation which remains unremedied for a period of seven (7) days from the date of the notice of such Material Breach;

(v) circumstances which entitle the Employer to termination under Section 11.2 (*Termination for Company's Default*), irrespective of whether notice of termination has been given;

(vi) failure by the Company to remedy any Defects or Deficiencies; and/or

(vii) any other event, circumstance or provision stated under this Agreement which entitles the Employer to make a demand under the Warranty Bond.

9.4.4 To the extent the Employer was not entitled to a claim under the Warranty Bond and yet

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received monies in relation to the same, the Employer shall reimburse (subject to any final settlement/judgment under the dispute resolution mechanism set out herein) the Company any such amounts within fourteen (14) days of the Employer's receipt of a written demand from the Company.

9.4.5 The Employer shall return the Warranty Bond to the Company within twenty-eight (28) days after the Release Date, **provided that**, no event is subsisting that entitles the Employer to make a demand under the Warranty Bond nor are there any outstanding claims by the Employer under the Warranty Bond.

9.4.6 Where, at any time subsequent to the issuance of the Warranty Bond, the Warranty Bond issuing bank (as specified in the definition of Warranty Bond above) or the Warranty Bond fails to meet the Minimum Credit Rating, then, upon the instructions of the Employer, the Company shall, within ten (10) days of receipt of such instructions from the Employer, procure from a bank or financial institution, which meets the Minimum Credit Rating, satisfactory to the Employer a substitute Warranty Bond for the amount prevailing as of that date. Upon receipt of such substitute Warranty Bond in the form and substance satisfactory to the Employer, the Employer shall return the earlier issued Warranty Bond to the Company.

10. APPLICATION FOR RELEASE CERTIFICATE

10.1 FULFILMENT OF TERM EXPIRY CRITERIA AND ISSUANCE OF RELEASE CERTIFICATE

10.1.1 The Company's obligations relating to the Operating Period shall expire when:

(a) the Company has fulfilled the Term Expiry Criteria; and

(b) the Release Certificate is issued by the Employer.

10.1.2 The Company shall notify the Employer, when each of the Term Expiry Criteria have been met and pursuant to such notification, shall apply to the Employer for issuance of the Release Certificate. Following the Employer's receipt of the Company's afore-stated notification, the Employer shall within thirty (30) days of receipt of the Company's afore-stated Notification, either:

(a) upon verification of each of the Term Expiry Criteria having been met, issue the Release Certificate to the Company, provided that the Company has, in all material respects, met the Term Expiry Criteria; or

(b) reject the Company's application for issuance of the Release Certificate, giving reasons and specifying the work required to be done, or obligation required to be fulfilled, by the Company to enable the Release Certificate to be issued. The Company shall then complete this work or fulfil such obligation, at no cost to the Employer, before issuing a further notice under this Section.

10.1.3 In the event of the Employer's rejection of the Company's request for issuance of the Release Certificate in accordance with Section 10.1.2(b), the Company shall either:

(a) accept the Employer's rejection for issuance of the Release Certificate, in which case the Company shall perform its relevant obligations under this Agreement so as to meet the Term Expiry Criteria and fulfil the outstanding obligations and obligations as specified by the Employer, and the procedure set out in Section 10.1.2 shall be repeated; or

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(b) dispute the Employer's decision of the Term Expiry Criteria or any part thereof not being met, in which case such dispute shall be determined in accordance with Section 21 (*Dispute Resolution*). If following the resolution of the dispute in accordance with Section 21 (*Dispute Resolution*) it is determined that:

(i) the Term Expiry Criteria is not met, the Company shall perform its relevant obligations under this Agreement so as to meet the Term Expiry Criteria and the procedure set out in Section 10.1.2 and Section 10.1.3 shall be repeated; or

(ii) the Term Expiry Criteria is met, the Employer shall issue the Release Certificate within ten (10) business days of the resolution of the dispute in accordance with Section 21 (*Dispute Resolution*).

11. DEFAULT AND TERMINATION

11.1 TERMINATION FOR EMPLOYER'S DEFAULT

11.1.1 The Company may terminate this Agreement in the following circumstances by giving Notice of termination on expiry of the period specified in this Section 11.1.1 and its reason for termination:

(a) if the Employer has failed to make due payments as per the terms of this Agreement excluding any: (i) disputed amounts; and (ii) deductions that the Employer is entitled to make under this Agreement, provided, however, the right to terminate for Employer's payment default only arises where: (A) the Company has complied with the requirements and the payment terms as prescribed under this Agreement and, in respect of the Supply Cost, all LC Documents were timely submitted to the satisfaction of the LC issuing bank; and (B) the due and payable sums remain unpaid for sixty (60) business days after receipt of Notice of non-payment by the Company to the Employer, which Notice will be a precondition for termination; or

(b) if the Employer commits a material breach of this Agreement that has a material adverse effect on the Company's ability to perform its obligations under this Agreement and fails to remedy the same within sixty (60) days, after Notice from the Company to the Employer stating such material default or material breach; or

(c) prolonged suspension of O&M Services under Section 7.19.4.

11.2 TERMINATION FOR COMPANY'S DEFAULT

11.2.1 The Employer may terminate this Agreement in the following circumstances by giving thirty (30) days' Notice of termination, or any other notice period specified otherwise in this Section 11.2.1 or Notified by the Employer, to the Company and referring to this Section 11.2.1 and its reason for termination:

(a) the Company subcontracts the Company's Obligations (except as permitted hereunder) or assigns this Agreement without approval or consent of the Employer;

(b) the Company voluntarily abandons the Project and/or the Covered Assets or repudiates this Agreement or the Company loses the relevant approvals, licenses and permits, including the Consents, required to execute the Company's Obligations and fails to remedy the same within thirty (30) days of occurrence;

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(c) if the Company commits a material breach of this Agreement and/or the Lease to Own Agreement and fails to remedy the same within thirty (30) days or such additional period as may be agreed by the Employer, after Notice from the Employer to the Company stating such material default or material breach;

(d) the O&M Services provided by the Company fail to meet the Key Performance Indicators and / or the Applicable Standards;

(e) a final judgment against the Company in excess of the equivalent of PKR 50,000,000/- (Pakistani Rupees Fifty Million only) remains unsatisfied for more than sixty (60) days (unless a bond is filed or other steps are taken to effectively stay enforcement of such judgment), or a levy is issued or attachment is made on all or any part of the Company and such levy or attachment is not discharged or the property is not redeemed within thirty (30) days after such levy or attachment;

(f) if the Company fails to furnish, keep valid and maintain in full effect the Company Securities in accordance with this Agreement;

(g) the: (a) Delay Liquidated Damages Cap; or (b) Performance Liquidated Damages Cap has been exceeded (by way of calculation);

(h) if: (A) the Company fails to perform any or all of the Supply Obligations in accordance with the Schedule of Delivery (including within any extensions thereof in accordance with this Agreement); (B) the Company fails to procure any or all of the Goods in accordance with the Schedule of Delivery (including within any extensions thereof in accordance with this Agreement); or (C) the: (i) Commencement Date Phase I is not achieved within one hundred seventeen (117) days from the expiry of the Scheduled Commencement Date Phase I; or (ii) Commencement Date Phase II is not achieved within one hundred seventeen (117) days from the expiry of the Scheduled Commencement Date Phase II;

(i) a failure by the Company to obtain and maintain any Consents, in order for it to execute and perform the Company's Obligations and its obligations pursuant to this Agreement; or

(j) if the Company has failed to make payments of the Lease Payments as per the terms and conditions of this Agreement and/or the Lease to Own Agreement.

11.2.2 The Employer may terminate this Agreement immediately by Notice to the Company and without any opportunity to cure if:

(a) the Company becomes bankrupt or insolvent, or has a receiving order issued against it, or compounds with its creditors, or, being a corporation, a resolution is passed or order is made for its winding up (other than a voluntary liquidation for the purposes of amalgamation or reconstruction) or a receiver is appointed over any part of its undertaking or assets, or if the Company takes or suffers any other analogous action in consequence of debt; or

(b) any statement, representation or warranty set out in Section 14 (*Representations and Warranties*) proves to be incorrect, in any material respect, when made or when reaffirmed and such incorrect statement, representation or warranty having a material adverse effect on the Company's ability to perform its obligations under this Agreement and / or ensure that the Company performs its obligations under this Agreement or having a material adverse effect on the rights or obligations of the Employer under this Agreement; or

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(c) any wilful misstatement or wilful misrepresentation (not set out in Section 14 (*Representations and Warranties*)) made by the Company which has a material adverse effect on the performance of the Company's Obligations by the Company under this Agreement; or

(d) the Company is found to be engaged in corrupt or fraudulent practices in executing its obligations under this Agreement as decided by the order of the court of competent jurisdiction;

(e) the Company creates any Encumbrance on the Covered Assets; or

(f) the Company or any of its representatives become blacklisted by the GoP any provincial or local government, or a corporation, company, institution, corporate body, local body, local authority, agency or organisation set up or controlled (directly or indirectly) by the GoP and / or GoS.

11.3 OBLIGATIONS PRIOR TO EXPIRY OR TERMINATION

11.3.1 Termination or expiration of this Agreement will not relieve the Company of any obligation arising under this Agreement or in respect of Company's Obligations completed prior to expiry or termination of this Agreement.

11.4 ACTIONS TO BE TAKEN UPON EXPIRY OR TERMINATION

11.4.1 On the date of expiration or termination of this Agreement, the Company shall, at the Employer's request, provide the following services relative to the Company's Obligations so affected:

(a) deliver actual or constructive possession of the Covered Assets, free and clear of all Encumbrances (except the Buses that after expiry of the Term shall be transferred to the Company in accordance Section 7.23 *(Transfer of Buses)*), free and clear of all Encumbrances;

(b) cease all further performance of the Company's Obligations, except such Company's Obligations as the Employer may specify for protecting and securing the Covered Assets against any deterioration, loss or damage;

(c) terminate all ongoing subcontracts and other contractual agreements including the Non-Fare Revenue Agreements, except those to be assigned to the Employer pursuant to Section 11.4.1(d) below;

(d) assign to the Employer, or to any person designated by the Employer: (i) title to all equipment and materials not already owned by the Employer as may be designated by the Employer; (ii) subcontracts, Non-Fare Revenue Agreements and other contractual agreements (including warranties) (as applicable) as may be designated by the Employer; (iii) any issued permits, licenses, authorizations, approvals, patents and other proprietary rights, if any, then held by the Company pertaining to the Covered Assets; and (iv) any proprietary components needed for the operation, maintenance or repair of the Covered Assets; and

(e) deliver to the Employer all information and records as may be reasonably requested by the Employer for the operation, maintenance or repair of the Covered Assets, including all plans or other manuals and other information prepared hereunder as of the date of termination.

11.4.2 The Parties shall mutually agree to any sums payable to the Company for the actions to be taken under Section 11.4.1.

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11.5 PAYMENTS BY COMPANY FOLLOWING EXPIRY OR TERMINATION

11.5.1 Upon expiry or termination of this Agreement, the Company shall pay the Employer the sum of (a), (b) and (c) below, in each case as may be due and payable in accordance with the terms of this Agreement:

(a) refund the Employer any unrecovered portion of the Advance Payment with respect to partial delivery of Goods and thereafter the Employer shall return the Advance Payment Security;

(b) any Liquidated Damages accrued, due and payable under the provisions of this Agreement; and

(c) any Losses incurred by the Employer as a result of such termination for Company's default under Section 11.2 (*Termination for Company's Default*).

11.5.2 If required by any Party, the amounts payable in Section 11.5.1 may be verified by the Independent Expert.

11.5.3 In the event, this Agreement is terminated for a Company default under Section 11.2 (*Termination for Company's Default*), the Employer shall be entitled to encash the Performance Security to its full value.

11.6 PAYMENTS BY EMPLOYER FOLLOWING EXPIRY OR TERMINATION

11.6.1 Subject to Section 11.6.2, within thirty (30) days following the Company's compliance with its obligations under Section 11.4 *(Actions to be Taken Upon Expiry or Termination)* the Company shall submit to the Employer for payment a final invoice for all outstanding amounts of the: (a) Bus Supply and O&M Fees (if any); (b) Incentive Payments (if any) and (c) any sums payable by the Employer to the Company under Section 11.4.1; and (d) only where termination occurs due to Employer's default under Section 11.1 (*Termination for Employer's Default*), the Termination Payment.

11.6.2 If this Agreement is terminated by the Employer due to Company's default under Section 11.2 *(Termination for Company's Default)*:

(a) the Employer shall not be obliged to reimburse the Company for any costs incurred by the Company in complying with its obligations pursuant to Section 11.4 *(Actions to be Taken Upon Expiry or Termination)*;

(b) the Employer shall submit to the Company for payment an invoice for any direct out-of-pocket expenses properly and reasonably incurred by the Employer and solely attributable to such termination and, if the Employer engages a replacement operator/entity, the additional costs reasonably incurred by the Employer in engaging such replacement operator/entity and the amount by which the reasonable costs payable under the replacement contract for carrying out the relevant Company's Obligations exceed the amount that would have been payable to the Company, which amount shall be deducted from any amounts outstanding to the Company, provided, however, that if the Employer elects to engage a replacement company, the Employer shall use its best efforts to engage such replacement company as soon as possible after termination of this Agreement; and

(c) in the event that expenses of the Employer under Section 11.6.2(b) are greater than any amount then owing to the Company (as determined by the Indepedent Expert), then the Company shall bear responsibility for the payment of such amount to the

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Employer provided that the Employer shall take all reasonable steps to minimize such costs, and if such costs are less than any amount owing to the Company, the Employer shall pay the remaining balance to the Company.

11.6.3 Any payments made pursuant to this Section 11.6 *(Payments by Employer following Expiry or Termination)* shall be made within thirty (30) days of the date of the invoice in immediately available funds.

11.7 SUCCESSOR TO COMPANY UPON EXPIRY OR TERMINATION

11.7.1 In addition to any actions taken in accordance with Section 11.4 *(Actions to be Taken Upon Expiry or Termination)*, upon expiry or termination of this Agreement, the Company, if requested in writing by the Employer, shall carry out its obligations under this Agreement after the expiry or termination for a period of sixty (60) days or such longer period as may be agreed between the Parties (the "**Transition Period**"), for smooth hand over to a successor company nominated by the Employer (the "**Successor Company**"). This Agreement shall remain in full force and effect during the Transition Period. The Company shall be paid an operating fee (as determined by the Independent Expert) as consideration for performance of O&M Services (subject to the terms and conditions for payment under Section 8 *(Bus Supply & O&M Fees and Other Payment Terms)*) and the Company's obligations set out in this Section 11.7 *(Successor to Company Upon Expiry or Termination)* during the Transition Period.

11.7.2 The Company shall facilitate the appointment and commencement of duties of the Successor Company so as not to disrupt the normal operation of the Project and shall provide full access to the Covered Assets and to all relevant information, data and records relating thereto to the Successor Company and its representatives and shall accede to all requests made by the Employer and/or the Successor Company in connection with the preparation for taking over the Covered Assets and in furtherance thereof, the Company shall provide to the Employer and/or the Successor Company such information and documents which the Employer and/or the Successor Company may reasonably request from the Company in connection with the operation of the Covered Assets.

11.8 HANDOVER OF COVERED ASSETS

11.8.1 Except as may be required under Section 11.4 *(Actions to be Taken Upon Expiry or Termination)* or Section 11.7 *(Successor to Company Upon Expiry or Termination)*, within thirty (30) days of:

(a) termination of this Agreement (prior to expiry of the Term), the Company shall hand over without any Encumbrances possession of the Covered Assets (including the Buses) to the Employer;

(b) expiry of Term of this Agreement, the Company shall hand over without any Encumbrances possession of the Covered Assets (except the Buses) to the Employer. The ownership of the Buses shall be transferred to the Company upon expiry of the Term in accordance with Section 7.23 *(Transfer of Buses)* and on terms and conditions (including payment of all due and payable sums) set out under the Lease to Own Agreement,

(the "**Handover Date**").

11.8.2 In the event the Company fails to handover the Covered Assets by the Handover Date each in accordance with Section 11.8.1 within the afore-stated time-period, the Employer shall

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in its sole and absolute discretion, proceed with taking over the Covered Assets and shall recover from the Company all costs in relation thereto.

11.9 END OF TERM ACTIVITIES

11.9.1 Subject to Section 11.7 *(Successor to Company Upon Expiry or Termination)*, the responsibility for the Company's Obligations shall transfer to the Employer or the Employer's designated company after the Performance End Date, including activities in progress as of the Performance End Date. The Company shall schedule all planned activities and obligations under this Agreement so that they are concluded prior to the Performance End Date.

11.10 SET-OFF RIGHTS

11.10.1 Without prejudice to other rights and remedies of the Employer, the Employer shall be entitled to deduct any amounts payable by the Company to the Employer from any amounts due to the Company by the Employer. If payments due to the Employer are not sufficient to cover the amounts payable by the Company, the Company shall pay the difference to the Employer within ten (10) days of the Employer's demand, failing which the Employer may recover the payable amount by encashing the Performance Security.

11.11 OBLIGATIONS PRIOR TO EXPIRY OR TERMINATION

11.11.1 Notwithstanding termination or expiration of the Term of this Agreement and transfer of the responsibility for performance of the Company's Obligations at the Performance End Date, the Company shall not be relieved of any obligation arising out of the Company's Obligations performed prior to termination.

12. WARRANTY

12.1 WARRANTY

12.1.1 For the Company's Obligations provided for under this Agreement, the Company provides the following warranties, set out in this Section 12 *(Warranty)* ("**Warranty**").

12.1.2 The Company warrants to the Employer that as part of the Warranty obligations during the Warranty Period:

(a) the Goods (including the Bus Battery and Structure) delivered under this Agreement shall be in accordance with the Applicable Standards and applicable operations manual for the Buses shall be free from any Defects or Deficiencies, including defects in material, workmanship and title; and

(b) the O&M Services performed under this Agreement shall be performed in a competent and diligent manner in accordance with the Applicable Standards and shall be free from any defects or deficiencies.

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12.2 WARRANTY PERIOD

12.2.1 The Warranty Period in respect of:

(a) Bus Battery and Structure, shall be for the Bus Battery and Structure Warranty Period;

(b) Goods (other than the Bus Battery and Structure), shall be for the Goods Warranty Period;

(c) any Parts, shall be at least twelve (12) months from the date of repair or replacement of such Parts;

(d) any O&M Services shall be for the remaining Term from the date of execution of O&M Services in respect of the Covered Assets.

12.2.2 Such period of time as described above with respect to the Covered Assets, Spare Parts and O&M Services shall be defined as the "**Warranty Period**".

12.3 WARRANTY REMEDY

12.3.1 If any of the Goods (including the Bus Battery and Structure), Parts and/or Spare Parts do not meet the above warranties during the applicable Warranty Period, the Company shall, at its cost, correct or shall cause to correct the defective Good(s) (including the Bus Battery and Structure), Parts and/or Spare Parts by, at its option, repairing or replacing the defective Good(s) (including the Bus Battery and Structure), Parts and/or Spare Parts and, at its option, taking possession of the defective Good(s) (including the Bus Battery and Structure), Parts and/or Spare Parts.

12.3.2 Where defective Good(s) (including the Bus Battery and Structure), Parts and/or Spare Parts is discovered during the applicable Warranty Period, the Company shall be responsible for the Costs of removing and transporting the defective Good(s) (including the Bus Battery and Structure), Parts and/or Spare Parts. However, where a defect in any Goods (including the Bus Battery and Structure), Parts and/or Spare Parts cannot be corrected by the Company's reasonable efforts, the defective Good (including the Bus Battery and Structure), Part and/or Spare Part shall be replaced.

12.3.3 If any part of the O&M Services does not meet the above warranties during the applicable Warranty Period for such part of the O&M Services, the Company shall thereupon correct any defective part of the O&M Services by re-performing the defective O&M Services at the Cost of the Company.

12.4 EXTENDED WARRANTY

12.4.1 Any re-performed O&M Service or repaired or replaced Good (including the Bus Battery and Structure), Part and/or Spare Part furnished under the Warranty shall carry warranties on the same terms as set forth above, except that the period of Warranty on such re-performed O&M Service or repaired or replaced Good (including the Bus Battery and Structure), Part and/or Spare Part shall be the longer of:

(a) the remaining balance of the applicable Warranty Period, or

(b) a period of twelve (12) months from the date of such re-performed O&M Service or repaired or replaced Good (including the Bus Battery and Structure), Part and/or Spare Part (as the case may be).

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In any event the period where Warranty can be claimed in respect to any O&M Service or repaired or replaced Good (including the Bus Battery and Structure), Part and/or Spare Part and the Company's responsibilities set forth herein for such re-performed O&M Service or repaired or replaced Good (including the Bus Battery and Structure), Part and/or Spare Part (as the case may be) shall end twelve (12) months after expiry of the Warranty Period applicable to the initial O&M Service or repaired or replaced Good (including the Bus Battery and Structure), Part and/or Spare Part (as the case may be).

12.5 FAILURE TO REMEDY DEFECTS IN THE GOODS

12.5.1 The Company shall be required to remedy any Defects or Deficiencies or damage to the Goods within such reasonable time as is instructed by the Employer (which period may be extended by the Employer in its discretion).

12.5.2 If the Company: (i) fails to remedy the Defects or Deficiencies or damage in accordance with Section 12.5.1; or (ii) fails to comply with any such instruction under Section 3.3 *(Employer's Instructions)*, the Employer may (at its option):

(a) carry out the work itself or by others, in a reasonable manner and at the Company's cost, but the Company shall have no responsibility for this work; and the Company shall, subject to Section 3.4 (*Employer's Claims*), pay to the Employer the costs reasonably incurred by the Employer in remedying the Defects or Deficiencies;

(b) agree or determine a reasonable reduction in the Supply Cost in accordance with Section 3.5 (*Determinations*); or

(c) if the Defects or Deficiencies deprives the Employer of substantially the whole benefit of the Supply Obligations or any major part of the Supply or any part thereof do not meet the Applicable Standards, terminate this Agreement as a whole, or in respect of such part. Without prejudice to any other rights, under this Agreement or otherwise, the Employer shall then be entitled to recover all sums paid for the Supply Obligations and returning the Goods to the Company.

12.5.3 At any time following the end of each month, the Employer shall compute and advise the Company in an invoice of the amount(s) due to the Employer pursuant to this Section 12.5 *(Failure to Remedy Defects in the Goods)*. Such amounts shall be payable by the Company within twenty (20) days of the date of delivery of such invoice to the Company. However, failure by the Employer to provide such invoice in a timely manner shall not preclude the Employer from claiming the same from the Company at a later stage.

12.6 EXCLUSIONS

12.6.1 The Company's aforementioned Warranty does not warrant Parts:

(a) against normal wear and tear, including effects of the environment or operation;

(b) when done by a person other than the Company or its Sub-Supplier or Sub-Contractors, against: (i) improper; (ii) untimely routine or planned maintenance of the Goods (including the Bus Battery and Structure), Parts and/or Spare Parts and/or its associated unit; or (iii) repair or modification of the Goods (including the Bus Battery and Structure), Parts and/or Spare Parts and/or the unit which is not in accordance with the Company's instructions/manuals other than when such activities are carried out by the Company; and

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(c) against improper installation of Spare Parts and/or Parts other than when such improper installation is carried out by the Company.

12.7 SERIAL DEFECTS

12.7.1 If before the expiry of the Serial Defects Notification Period, upon the Company having become aware of or having been notified by the Employer of a Serial Defect, the Company shall investigate and ascertain whether the Serial Defect(s) exist. If a Serial Defect(s) exists and is discovered, the Company shall furnish the Employer with a report, detailing the source and root cause of the Serial Defect(s).

12.7.2 The Company shall submit to the Employer for its approval details of the remedial work which it proposes to make pursuant to this Section 12.7 *(Serial Defects)*, the estimated duration of such remedial work, details of such Buses as it may be necessary to halt operations and the proposed dates for the remedial work. If the remedial work can be carried out without halting operations of the Buses, the Company shall carry out such remedial work as soon as reasonably practicable. If the remedial work necessitates halting operations of Buses, the remedial work shall be carried out at a time and for periods agreed with the Employer or failing agreement at such times which minimize disruption to the Operation of the Buses as far as practicable having regard to the nature of defect.

12.7.3 The Company shall forthwith replace all such parts affected by the Serial Defect(s) with brand new parts and promptly rectify the same free of cost.

13. CONFIDENTIAL INFORMATION

13.1 CONFIDENTIAL INFORMATION

13.1.1 Each Party agrees that it shall, and shall ensure that its contractors, agents, employees, officers (including members of its board of directors and its supervisory board) shall, hold in confidence for the benefit of the other Party all the Confidential Information and shall not disclose to any third party or use (except for the purposes of this Agreement) the Confidential Information or any part thereof without such other Parties prior written approval. The Parties shall be required to limit the number of persons within their respective organisations to whom the Confidential Information is disclosed to the absolute minimum necessary to properly enable such Party to fulfil its obligations under this Agreement.

13.2 LIMITATIONS

13.2.1 The restrictions in Section 13.1 (*Confidential Information*) shall not apply, or shall cease to apply, to any part of the Confidential Information that:

(a) was in the possession of the recipient Party or a contractor, agent, employee, officer (including members of its board of directors and its supervisory board) or shareholder of the recipient Party at the time of the disclosure;

(b) was obtained by the recipient Party in good faith from a third party entitled to make disclosure thereof;

(c) is required to be published or disclosed by a Party under any Applicable Law or the rules of any securities exchange to which any Party or the holders, directly or indirectly, of any of its equity capital is subject;

(d) a Party, with the approval of the other Party, discloses to financial institutions,

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bona fide potential purchasers, its consultants and contractors; or

(e) is in or comes into the public domain other than by reason of a breach of Section 13.1 (*Confidential Information*) above.

13.3 CONFIDENTIALITY PROVISIONS TO SURVIVE

13.3.1 The confidentiality obligation of the Parties pursuant to Sections 13.1 (*Confidential Information*) shall remain in full force and effect for a period of five (5) years after the date of the expiration or earlier termination of this Agreement.

14. REPRESENTATIONS AND WARRANTIES

14.1 COMPANY'S REPRESENTATIONS AND WARRANTIES

14.1.1 Without prejudice to the other representations, warranties and conditions expressed elsewhere in this Agreement, or otherwise mandatorily implied by law, the Company hereby represents, warrants and undertakes to the Employer that:

(a) it is a company, duly incorporated and validly existing under the laws of the Pakistan;

(b) it has full power and authority to enter into this Agreement and to carry out and perform and undertake the Company's Obligations and that this Agreement constitutes a legal, valid and binding obligation enforceable against it in accordance with the terms hereof;

(c) it has submitted certified true copies of all resolutions of the board of directors / governing body of the Company authorizing execution, delivery of this Agreement and the performance of the Company's Obligations under this Agreement;

(d) all information, statements, plans, documents and reports furnished or submitted by the Company to the Employer in connection with this Agreement are in all material respects true and correct;

(e) the entry into and performance by the Company of this Agreement does not and will not conflict the terms of its memorandum and articles of association or any covenant, contract, agreement, arrangement, decree, understanding or any other document which is binding upon it or any of its assets to the extent that such conflict would be reasonably likely to have a material adverse effect on the ability of the Company to perform its obligations under this Agreement;

(f) no action, litigation, arbitration or administrative proceedings has been commenced, or, to the best of its information, knowledge and belief following the making of all reasonable inquiry, is pending or threatened against the Company and nor is there subsisting any unsatisfied judgment decree or award given against it by any court, arbitrator or other body which will materially and adversely affect or impede the Company's ability to perform its obligations under this Agreement;

(g) the Company: (i) has reviewed the requirements for execution of the Company's Obligations; and (ii) has familiarized itself with all prevailing factors and conditions affecting the obligations of the Company under this Agreement, and all other factors and conditions affecting execution of the Company's Obligations, and accepts the same and agrees that all such matters are satisfactory and will not prevent performance by the Company of its obligations under this Agreement, and

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accepts that it shall not be entitled to raise any defense or make any claim under or in relation to this Agreement as a consequence of:

(i) any mistake, gap or insufficiency in or in relation to its knowledge or understanding of the above matters; or

(ii) the state, condition or content of any such matters, including the state of the Covered Assets and waives any right it may have to raise any such defence or make any such claim;

(h) it has provided the Employer with true and accurate information about its experience and qualifications and has not omitted any information that would be relevant to the Employer's decision to retain the Company to carry out and perform the Company's Obligations in the manner and to the extent contemplated herein;

(i) it shall not change its legal status or otherwise amend its constitutive documents except without prior written approval of the Employer;

(j) it has not granted and will not during the Term of this Agreement grant to any third-party any rights which are inconsistent with the rights granted under this Agreement;

(k) the entry into and performance by the Company of this Agreement does not and will not conflict with any Applicable Law in effect on the date of this Agreement;

(l) the entry into and performance by the Company of this Agreement requires no governmental or other approvals, or if required, all such approvals have been obtained;

(m) the entry into and performance by the Company of this Agreement does not and will not conflict with any document which is binding upon it or any of its assets to the extent that such conflict would be reasonably likely to have a material adverse effect on the ability of the Company to perform its obligations under this Agreement;

(n) it has not taken any action nor, to the best of its information and knowledge, after making all due enquiry, have any steps been taken or legal proceedings been started or threatened against it for winding-up, dissolution or re-organisation, the enforcement of any security interest over its assets or for the appointment of a receiver, administrative receiver or administrator, trustee, judicial factor or similar officer of it or of its assets;

(o) obtain and maintain the Consents during the Term and ensure compliance with all Applicable Laws while performing all its obligations under this Agreement and be completely liable for any breach in this respect;

(p) use the Covered Assets exclusively for the purposes and in the manner prescribed under this Agreement;

(q) ensure the payment of all dues in a timely manner, whether to the competent authorities or in respect of use of utilities or to any other parties, incurred while performing its obligations under this Agreement;

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(r) Operate the Buses as per the Dispatch Schedule and the Dispatch Schedule and Headway Targets, as notified by the Employer from time to time in accordance with Section 7.11 *(Dispatch Schedule and Headway Targets)*;

(s) ensure that the Company's Obligations are preformed and implemented in an uninterrupted and continuous manner and that the same are not suspended or stopped unless provided for under this Agreement or under the directions of the Employer;

(t) operate the Buses maintaining the highest standards of service quality as per Applicable Standards, pertaining to all aspects of the operation of the Buses including, but not limited to, the behavior of the crew and the other staff, and implementation of all Employer's Instructions issued through various means of communications by the Employer from time to time;

(u) it has sufficient O&M Personnel, trained staff, facilities and approved subcontracts or other agreements in place and available to enable the Company to fully execute and perform the Company's Obligations;

(v) it has not granted and will not during the Operating Period grant to any third party any rights which are inconsistent with the rights granted under this Agreement;

(w) allow access on the Buses to all members of the public without any prejudice or discrimination;

(x) it will promptly Notify the Employer of any event or claim, including but not limited, to any violation or default with respect to any order, writ, injunction etc., which, if substantiated, is reasonably likely to either have a material adverse effect or result in any liability for the Employer;

(y) keep the Covered Assets free from any Encumbrances;

(z) all rights and interests vested in the Company pursuant to this Agreement shall automatically pass to and vest in the Employer or to any nominee specified by the Employer, without any claims or Encumbrances, on the termination or expiry of this Agreement;

(aa) no representation or warranty contained herein or in any other ancillary agreement entered into by the Employer pursuant to this Agreement contains or shall contain any untrue, incorrect or misleading statement or omit to state a material fact. In the event that any occurrence or circumstances comes to the attention of the Company that renders any of its aforesaid representations or warranties untrue or incorrect, the Company shall immediately Notify the Employer of the same. For the avoidance of any doubt, such Notice shall not have the effect of remedying any breach of the representation or warranty that has been found to be untrue or incorrect nor shall it adversely affect or waive any right, remedy or obligation of the Parties under this Agreement.

14.1.2 Each of the aforesaid representations and warranties shall be deemed to be repeated by the Company prior to each payment by the Employer in accordance with Section 8 *(Bus Supply and O&M Fees and Other Payment Terms)*.

14.2 EMPLOYER'S REPRESENTATIONS AND WARRANTIES

14.2.1 Without prejudice to the other representations, warranties and conditions expressed elsewhere in this Agreement, or otherwise mandatorily implied by law, the Employer represents, warrants and undertakes to the Company that:

(a) it will assist the Company at all times during the Term to obtain Consents from

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competent authorities for the implementation and performance of Company's Obligations;

(b) it will promptly make payments of all amounts due to the Company under the provisions of this Agreement.

15. ASSIGNMENT AND NOVATION

15.1 ASSIGNMENT

15.1.1 Except as permitted in Section 15.3 *(Subcontracting)*, the Company shall not assign, transfer or charge, in whole or in part, its rights and obligations to perform or deal in any other manner with any or all of its rights and obligations under this Agreement without the Employer's prior written consent.

15.1.2 The Employer may at any time assign, transfer, charge, subcontract, or deal in any other manner with any or all of its rights under this Agreement without the Company's prior consent.

15.2 NOVATION

15.2.1 Subject to obtaining all relevant prior approvals, the Employer (the "**Transferor**") may assign or transfer by novation all or any part of its rights, interests, benefits or obligations under this Agreement to any entity or entities assuming all or part of the Transferor's rights and obligations under this Agreement (the "**Transferee**") so long as such Transferee shall assume in writing for the benefit of the Transferor and Company all of the obligations of the Transferor under this Agreement. Upon such assignment or transfer and assumption, the Transferor shall be relieved of all obligations assigned or transferred to and assumed by the Transferee under this Agreement. The Company hereby agrees and undertakes, as required by the Employer to enter into and execute such further documents (in such form and substance as prescribed by the Employer) to give effect to the aforesaid assignment or transfer by novation.

15.3 SUBCONTRACTING

15.3.1 In accordance with the requirements of this Agreement, the Company is allowed to subcontract the Supply Obligations to the Sub-Supplier; provided that at all times the Company shall remain liable for the obligations of the Sup-Supplier and shall ensure that the Sub-Supplier is in compliance with the requirements of this Agreement.

15.3.2 The Company cannot subcontract the entire Company Obligations.

15.3.3 The Company shall obtain the Employer's prior written consent, not to be unreasonably withheld, for any onsite Sub-Contractors who shall be performing any part of the Company Obligations.

15.3.4 The Company shall be responsible for the acts, omissions, failure to perform or defaults of any Sub-Contractors, its agents or employees, as fully as if they were the acts, omissions or defaults of the Company, its agents or employees. Any subcontracting by the Company of any portion of the Company Obligations shall not release or discharge the Company of any of its responsibilities or obligations under this Agreement.

15.4 SUB-SUPPLIER AND SUB-CONTRACTOR

15.4.1 The Company shall not subcontract the: (a) Supply Obligations to any party other than the

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Sub-Supplier; and (b) Company Obligations (except the Supply Obligations), other than to an approved Sub-Contractor. Unless otherwise stated in this Agreement, if the Company proposes any change to the Sub-Supplier, the Employer's consent shall be required, and it shall be the sole judgment of the Employer's Representative to approve or reject the proposed sub-supplier.

15.4.2 The Company shall be responsible for observance by the Sub-Supplier / Sub-Contractors of all the provisions of this Agreement. The Company shall be responsible for the acts or defaults of the Sub-Supplier, its agents or employees, as fully as if they were the acts or defaults of the Company, its agents or employees. Any subcontracting by the Company of any portion of the Supply Obligations shall not release or discharge the Company of any of its responsibilities or obligations under this Agreement. Any Sub-Supplier warranties extending beyond the Goods Warranty Period and / or the Bus Battery and Structure Warranty Period (or any longer applicable period agreed to by the Company) shall automatically be assigned to the Employer. The Company shall ensure that:

(a) all subcontract agreements include an undertaking stating that any claims, damages, losses and expenses arising out of or relating to the performance by the Sub-Supplier / Sup-Operators of their respective obligations shall be made directly to the Company without any (direct or indirect) recourse or reference to the Employer; and

(b) all subcontract agreements and purchase orders contain a provision, providing for assignment of such subcontracts or purchase orders to the Employer in the event of termination of the Company's employment pursuant to the terms of Section 11.2 (*Termination for Company's Default*). Such assignment will be at the discretion of the Employer, in accordance with the terms of Section 15.1 (*Assignment*), and at no cost to the Employer.

16. GENERAL INDEMNITY

16.1 INDEMNITY BY THE COMPANY

16.1.1 The Company on behalf of itself, its Sub-Contractors, Sub-Supplier, O&M Personnel, employees, successors and assignees shall save, defend. indemnify and hold harmless the Employer, the Employer's Representative and each of its respective contractors, agents, representatives, consultants and employees from and against all claims, damages (including any environmental damages), Losses and expenses arising out of or resulting from the performance, non-performance or breach by the Company of its obligations under this Agreement or the negligence, wilful default or fraud of the Company, Sub-Supplier, O&M Personnel, employees, officers, agents or Sub-Contractors, including, without any limitation, as a result of any claim;

(a) in respect of injury or destruction of physical property including third party property; or

(b) in respect of bodily injury, sickness, disease, or death or personal injury or other health and safety liability; or

(c) arising in relation to any liabilities, incurred by the Company on the Employer's behalf which are not authorised under this Agreement; or

(d) by any passenger on the Buses; or

(e) for any breach of the Applicable Standards; or

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(f) for the breach of any intellectual property rights or patents as provided in Section 17.2 *(Ownership of Relevant Documents)* and Section 17.3 *(Intellectual Property Rights)*; or

(g) in accordance with Section 5.20.2;

which may be brought or alleged or threatened against the Employer or any of its employees, officers and agents by any person.

16.1.2 This Section 16 *(General Indemnity)* shall survive until the expiration or termination of this Agreement.

16.1.3 For the purposes of this Section 16 *(General Indemnity)*, the term "*Company*" shall mean Company, its affiliates, Sub-Contractors, Sub-Supplier and O&M Personnel of any tier, and their respective agents and employees, whether individually or collectively.

17. OWNERSHIP AND INTELLECTUAL PROPERTY RIGHTS

17.1 OWNERSHIP OF COVERED ASSETS

17.1.1 Subject to the right to use and/or to Operate and Maintain the Covered Assets, the Company shall not acquire through this Agreement any right, title or interest in or to the Covered Assets (except the Buses that shall be transferred to the Company in accordance with Section 7.23 *(Transfer of Buses)*). The Covered Assets are, and shall at all times be and remain, solely and exclusively the property of and continue to remain vested in the Employer, and no right, title or interest in the Covered Assets shall pass to the Company (except the Buses that shall be transferred to the Company in accordance with Section 7.23 *(Transfer of Buses)*).

17.1.2 All records, information and data collected by the Company in execution of the Supply Documents, O&M Services and all Relevant Documents are the property of the Employer. Such records, information, data and Relevant Documents may not be published, transferred, disseminated, or otherwise used in any way without the prior written approval of the Employer.

17.2 OWNERSHIP OF RELEVANT DOCUMENTS

17.2.1 Without prejudice to the other rights of the Employer in respect of this Agreement, the records, information, know-how, plans, maps, documentation, designs, data, results and any associated intellectual property prepared by the Company pursuant to this Agreement, and the records, information and data collected by the Company during the performance of the Company's Obligations (collectively referred to as the "**Relevant Documents**") shall be in the exclusive ownership of the Employer. The Employer shall retain the copyright and other intellectual property rights in all Relevant Documents and other data furnished or to be furnished by (or on behalf of) the Company in connection with the Company's Obligations.

17.3 INTELLECTUAL PROPERTY RIGHTS

17.3.1 In this Section, *"infringement"* means an infringement (or alleged infringement) of any patent, registered design, copyright, trademark, trade name, trade secret or other intellectual or industrial property right relating to the Company's Obligations; and *"claim"* means a claim (or proceedings pursuing a claim) alleging an infringement.

17.3.2 The Company (or the Sub-Supplier, as the case may be) shall be responsible for the payment of all fees, royalties and other charges, if any, that may be payable under the terms

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of any license or permission in respect of any patent rights, design trademark, copyright or trade name, intellectual property right or other protected right relating to:

(a) any design of the Goods provided or performed by the Company; and

(b) any work done or method employed in the performance of the Company Obligations.

17.3.3 If any patent or another industrial right is infringed, the Company shall procure for Employer an equivalent right of utilization either by modification to the effect that they are free of any third party's right or by procuring the third party's authorization of utilization.

17.3.4 In the event of any claim being made or proceeding instituted against the Employer to which the above provisions apply, the Employer shall promptly notify the Company thereof and the Company shall, at its own cost, in the Employer's name deal with such claim or conduct such proceedings and settle such claims and any litigation or arbitration that may arise from it. The Employer shall not, unless the Company shall fail to deal with such claim or conduct such negotiation, litigation or arbitrations, make any admission prejudicial thereto.

17.3.5 The Company hereby agrees to indemnify the Employer for any breach of any intellectual property rights by the Company, its employees, officers, agents, Sub-Contractors, Sub-Supplier and / or members arising out of the performance of the Company's Obligations and this Agreement.

18. FORCE MAJEURE

18.1 FORCE MAJEURE

A "**Force Majeure Event**" will mean an event beyond the reasonable control of the Parties, which materially and adversely affects the performance by such affected Party of its obligations under or pursuant to this Agreement; provided, however, that such material and adverse effect could not have been prevented, overcome or remedied in whole or in part by the affected Party through the exercise of diligence and reasonable care, such events include but are not limited to, any of the following:

(a) Acts of God, including fire, flood, earthquake, windstorm, tornado, hurricane, or other natural disaster, epidemic or pandemic;

(b) War, threat of or preparation for war, armed conflict, imposition of sanctions, embargo, breaking off of diplomatic relations or similar actions;

(c) Terrorist attacks, civil war, civil commotion, strikes, or riots;

(d) Nuclear, chemical or biological contamination or sonic boom;

(e) Fire, explosion or accidental damage; and

(f) Military takeover or political instability.

18.2 NOTIFICATION OBLIGATION

18.2.1 The Party affected by a Force Majeure Event will give Notice thereof within seven (7) days from the commencement of the occurrence of such event in writing to the other Party and such Notice will include specific details of the occurrence.

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18.2.2 Provided a Notice has been duly given by the affected Party in accordance with Section 18.2.1, then during the currency of any Force Majeure Event, neither Party will be responsible or liable to the other for any failure or delay in performance of its obligations or be deemed to be in breach of this Agreement, to the extent that such failure or delay is caused by Force Majeure Event.

18.3 DUTY TO MITIGATE

18.3.1 The affected Party will use all reasonable efforts and will ensure that it uses all reasonable efforts to mitigate the effects of a Force Majeure Event. Furthermore, notwithstanding Section 18 *(Force Majeure)*, the affected Party will continue to perform its obligations under this Agreement as far as it is reasonably practical and will seek all reasonable alternative means for performance of its obligations not prevented by the Force Majeure Event.

18.4 TERMINATION FOR FORCE MAJEURE

18.4.1 In the event the interruption of the affected Party's obligations continues for a period in excess of forty-five (45) calendar days, either Party will have the right to terminate this Agreement upon thirty (30) calendar days' prior written notice to the other Party.

18.5 PAYMENT DURING FORCE MAJEURE EVENT

18.5.1 Upon the occurrence of any Force Majeure Event during the Operating Period, the Company shall be entitled to receive the payments for the Loss of Revenue during the pendency of a Force Majeure Event.

18.5.2 In the event that a Force Majeure Event results in material damage to the Covered Assets, the Company shall within fifteen (15) days deliver to the Employer a schedule of activities and the Cost of restoring the Covered Assets to an operatable condition in compliance with the Applicable Standards ("**Restoration**") less any insurance proceeds available or likely to become available under the Project Insurance Policies ("**Restoration Cost**"). The Restoration Cost shall be subject to verification and approval of the Independent Expert. Within forty-five (45) days of the Independent Expert's approval the Employer shall pay the Restoration Cost to the Company.

18.5.3 If the Parties mutually agree that the: (a) Restoration Cost is not feasible; and/or (b) Restoration of the Buses is not technically viable, then the Employer may elect to either:

(a) terminate this Agreement in accordance with Section 18.4 *(Termination for Force Majeure)*; or

(b) provide replacement Buses in accordance with Section 7.15 *(Additional Buses)*.

19. CHANGES

19.1 CHANGES

19.1.1 Each Party may, from time to time, propose changes in the scope of Company's Obligations to be provided and undertaken by the Company under this Agreement, which changes will be subject to mutual agreement of the Parties. The Company will advise the Employer if any proposed change results in a change in the price or payments, anticipated schedule of performance or have other impacts upon the terms or performance of this

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Agreement. Neither Party shall be obligated to proceed with any change until the Parties have agreed upon its effect and signed a written amendment or change order document.

19.1.2 During the Term, the Employer may request the Company to submit a proposal for Supply of additional Production Buses, provided, however, such change does not result in the Supply Cost exceeding by more than fifteen per cent (15%). Upon approving a change, the procedure under this Section 19 *(Changes)* shall be followed to agree or determine adjustments to the Supply Cost and/or the Schedule of Payment Milestones, schedule of delivery for additional Production Buses and performance of other ancillary Company Obligations including as may be applicable adjustments to the Schedule of Delivery and any adjustments required to the Company Securities.

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20. NOTICES

20.1 All notices required or desired to be given pursuant to this Agreement shall be in writing and shall be delivered by personal in-hand delivery, sent by facsimile transmission, or sent prepaid by recognized delivery service (such as Federal Express), addressed as follows:

(a) If to the Company:

Address: [•]
Tel.: [•]
Email: [•]
Attention: [•]

(b) If to the Employer:

Address: [•]
Tel.: [•]
Email: [•]
Attention: [•]

Such notices shall be deemed to have been given when delivered in the case of in-hand delivery, on the date shown by a facsimile transmission report or confirmation in the case of successfully completed facsimile transmission, and on the date of delivery in the case of delivery service. Either Party may modify its address for notices by advance written notice to the other Party delivered in conformance with this Section 20 (*Notices*).

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21. DISPUTE RESOLUTION

21.1 NOTICE OF DISPUTE

21.1.1 In the event that there arises between the Parties any dispute, controversy or claim arising out of or relating to this Agreement, including, without prejudice to the generality of the foregoing, the breach, termination or validity thereof, the Party wishing to declare a dispute shall deliver to the other Party a written notice identifying the disputed issue (the "**Dispute**").

21.2 RESOLUTION BY PARTIES

21.2.1 Within fifteen (15) days of delivery of a notice of a Dispute, the Parties shall use best efforts to settle the Dispute by discussions between members of the senior management of each Party. In the event that such individuals are unable to reach agreement within fifteen (15) days, or such longer period as they may agree, then both Parties (if acceptable) shall refer the Dispute for arbitration.

21.3 ARBITRATION

21.3.1 Any Dispute that is not resolved within thirty (30) days of delivery of a notice of dispute pursuant to Section 21.2 *(Resolution by Parties)* shall be finally settled by arbitration under the Arbitration Act.

(a) The arbitration shall be conducted in Karachi, Pakistan. Except as awarded by the arbitral tribunal, each Party shall be responsible for its own costs incurred by it in connection with an arbitration hereunder.

(b) No arbitrator shall be an employee or agent or former employee or agent of the Parties.

(c) The decision of the arbitrators shall be final and binding upon the Parties. Judgment upon the award rendered by the arbitrator may be entered in any court of competent jurisdiction. The Party in whose favour the award is given may enforce such award or judgment in any jurisdiction, including any jurisdiction where the other Party's assets may be located. Except as the Company and the Employer otherwise agree in writing pending the final resolution of any dispute in accordance with this Section 21 (*Dispute Resolution*), the Company shall proceed diligently with the performance of the Company's obligations under this Agreement and in compliance with the Employer's or Employer's Representative's directions, respectively.

(d) The language at any arbitration under this Agreement shall be English.

21.4 PERFORMANCE TO CONTINUE DURING ARBITRATION OR LITIGATION

21.4.1 Unless this Agreement is terminated, the Parties shall in every case proceed with the performance of all of their obligations under this Agreement during, and notwithstanding, any resolution of Disputes in accordance with Section 21 *(Dispute Resolution)*.

22. RELATIONSHIP

22.1 The Parties to this Agreement are independent entities. Neither Party is an agent, representative or partner of the other Party. Neither Party shall have any right, power or

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authority to enter into any contract or memorandum of understanding for or on behalf of, or incur any obligation or liability of, or to otherwise bind, the other Party. This Agreement shall not be interpreted or construed to create an association, agency, joint venture, collaboration or partnership between the Parties or to impose any liability attributable to such relationship upon either Party.

22.2 At all times, the Company shall act with appropriate propriety and discretion and in particular shall refrain from making any public statement concerning this Agreement or the Company's Obligations without the prior approval of the Employer and shall refrain from engaging in any political activity.

22.3 The Company shall report immediately to the Employer any accident or injury and any damage to the property of the GoS/Employer or to the property of persons or any third parties occurring in or arising out of the performance of the Company's Obligations and any act, manner, or thing which, within his knowledge, may have caused such accident or injury. The Company shall also report immediately to the Employer any circumstances or events which might reasonably be expected to hinder or prejudice the performance of the Company's Obligations.

23. AMENDMENTS

This Agreement may only be amended or modified with the mutual consent of both the Parties. However, no amendment or modification of the terms of this Agreement shall be valid and binding unless made in writing and signed by authorized representatives of each Party.

24. VALIDITY AND ENFORCEABILITY

The invalidity or unenforceability of any portion or provision of this Agreement will not affect the validity or enforceability of any other portion or provision. Any invalid or unenforceable portion or provision will be deemed separated from this Agreement, and the balance of the Agreement will be construed and enforced as if the Agreement did not contain such invalid or unenforceable portion or provision. Notwithstanding the provisions of the preceding sentence, should any term or provision of this Agreement be found invalid by any court of law having jurisdiction thereof, the Parties will immediately renegotiate in good faith such term or provision of the Agreement to rectify such invalidity.

25. EXCLUSIVE RIGHTS AND REMEDIES

The rights and remedies set forth in this Agreement are the exclusive rights and remedies of each Party with respect to this Agreement, its performance or breach.

26. ENTIRE AGREEMENT

This Agreement and all schedules, exhibits, attachments, and annexures, if any, hereto, constitutes the entire agreement between the Parties pertaining to the subject matter thereof and there are no binding understandings between the Parties pertaining to the subject matter hereto that are not contained in this Agreement. This Agreement will supersede and cancel any and all previous contracts, arrangements or understandings that may have existed or may exist on these matters between the Parties. This Agreement may only be amended by a written instrument executed between the Parties.

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27. LANGUAGE

The language of this Agreement, and all documents, materials and training, if any, to be supplied by the Company under this Agreement shall be English.

28. SURVIVAL

Notwithstanding anything to the contrary contained in this Agreement, all such relevant provisions of this Agreement that are required for the enforcement of each Party's obligations and for the settlement of liabilities, in each case, upon termination or expiry of this Agreement shall survive the termination or expiry of this Agreement until such obligations have been performed and the liabilities settled. Furthermore, any other provisions expressly specified in this Agreement to survive termination shall survive termination of this Agreement.

29. NO WAIVER

No forbearance, indulgence or relaxation or inaction by any Party at any time, to require performance of any of the provisions of this Agreement shall, in any way, affect, diminish or prejudice the right of such Party to require performance of that provision and any waiver or acquiescence by any Party of any breach of any of the provisions of this Agreement shall not be construed as a waiver of or acquiescence to any continuing or succeeding breach of such provisions or a waiver of any right under or arising out of this Agreement, or acquiescence to or recognition of rights and/or position other than as expressly stipulated in this Agreement.

30. GOVERNING LAW

This Agreement will be governed in accordance with the laws of Pakistan.

31. COUNTERPARTS

This Agreement may be executed in any number of counterparts, and this has the same effect as if the signatures on the counterparts were on a single copy of this Agreement, provided, that all counterparts have been duly executed by both Parties hereto.

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SIGNATURE PAGES

IN WITNESS WHEREOF, the Parties hereto have caused this Agreement to be executed on the day and year first above written.

AS EMPLOYER

For and on behalf of **SINDH MASS TRANSIT AUTHORITY** through its authorised signatory

Managing Director
Sindh Mass Transit Authority (SMTA)
Transport & Mass Transit Department
Government of Sindh

Name:
Designation:

SIGNATURE

.....

IN THE PRESENCE OF

SIGNATURES

WITNESSES:-

1- Name:
Address:
CNIC / Passport No:

.....

2- Name:
Address:
CNIC / Passport No:

.....

.....
Employer's Initials

.....
Company's Initials

AS COMPANY

For and on behalf of **NATIONAL RADIO & TELECOMMUNICATION CORPORATION** through its authorised signatory

SIGNATURE

.....

Name:
Designation:

Brigadier
TOFIQUE AHMED
Managing Director
National Radio Telecom Corp.
Haripur (KPK) Pakistan

SIGNATURES

IN THE PRESENCE OF

WITNESSES:-

.....

1- Name:
Address:
CNIC / Passport No:

2- Name:
Address:
CNIC / Passport No:

.....

.....
Employer's Initials

National Radio Telecommunication corporation
HARIPUR PAKISTAN

.....
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1. COMPANY'S RESPONSIBILITIES

1.1 Introduction

Public Transport needs of Sindh pose significant challenges, as unpredictable shifts in population dynamics in response to the need for employment, housing, and sustenance continues. The expansion of the cities in Sindh, coupled with the increasing urban population, has resulted in greater demand for transport provision in general and public transport provision in particular. Currently, cities like Larkana, Sukkur, Mirpurkhas, and Shaheed Benazir Abad (SBA) do not have a proper intra-city public transport system and the public uses either private vehicles or vans/Qingqis to travel within the cities. These stopgaps are insufficient both in terms of capacity and public safety.

Out of all the cities of Sindh, the transport system in Karachi being the economic hub of Pakistan, currently catering to more than 20 million people faces numerous and the most significant challenges. The complex and heterogeneous traffic pool largely dominated by private vehicles most of which are poorly maintained and inadequate enforcement of traffic rules in Karachi create serious and unbearable congestion.

The establishment of the Sindh Mass Transit Authority (SMTA) by the Government of Sindh (GoS) is solely focused upon providing safe, efficient, and comfortable urban transportation systems in the major cities of Sindh. With regards to the present situation of the intra-city public transport, SMTA has proposed an "Integrated Bus Operations" system as a solution to cater for the public transport demand in six major cities of the province including Karachi, Hyderabad, Mirpurkhas, Sukkur, Larkana, and SBA. In the first phase SMTA wants to operate 250 city buses in Karachi and Larkana and then in next phases aims to operate additional 50 buses in remaining cities mentioned above. The proposed system will provide high quality services to the public in these cities, meet the public transport demand, and contribute towards the development of a sustainable transport system.

In this regard, the Company is expected to bring in 250 Buses i.e., 150 low entry diesel-hybrid city buses of 12 m in length and 100 low entry diesel-hybrid city buses of 8.5 m in length for Karachi and Larkana. Detailed specifications of Buses are provided in Annexure E *(Employer's Requirements)*. Also details of route descriptions along with depots for each route are provided in Exhibit 1 *(Route Descriptions)*.

1.1.1 Following are the Route alignments for the Project:

Table -1 Proposed Public Transport Routes in Karachi

Route ID	Route Alignment	Route Length
Route 1 (Karachi)	**Model Colony to Merewether Tower:** via Malir Halt, Colony Gate, Nata Khan Bridge, Drigg Road Station, PAF Base Faisal, Laal Kothi, Karsaz, Nursery, FTC, Regent Plaza, JPMC, Cantt Station, Metropole, Regal Chowk and Aram Bagh	29.5 Km
Route 2 (Karachi)	**North Karachi to Indus Hospital:** via Nagan Chowrangi, Shafiq Morr, Sohrab Goth, Gulshan Chowrangi, NIPA, Johar Morr, COD, Drigg Road Station, Colony Gate, Shah Faisal Colony, Singer Chowrangi and Landhi Road	32.9 Km

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Route 3 (Karachi)	**Nagan Chowrangi to Singer Chowrangi:** via Anda Morr, North Nazimabad Town, KDA Chowrangi, Nazimabad Town, Liaqatabad 10 Number, Eissa Nagri, Civic Centre, National Stadium, Karsaz, Nursery, FTC, Korangi Road, KPT Interchange and Shan Chowrangi	33 Km
Route 4 (Karachi)	**Mosamiyat to Dock Yard:** via Gulzar-e-Hijri, Motorway M-9, Al-Asif Square, Ayesha Manzil, Federal B Area, Liaqatabad 10 Number, Lalu Khait, Guru Mandir, Society Chowrangi, Empress Market, Sindh High Court, Art Council, I.I. Chundrigarh Road and Tower	25.9 Km
Route 5 (Karachi)	**Surjani Town to Masroor:** via New Karachi, Shafiq Morr, KMDC, Ziauddin Chowrangi, KDA Chowrangi, Musa Colony, Manghopir, SITE Area and Gulbai	28.2 Km
Route 6 (Karachi)	**Gulshan-e-Bihar Orangi to Singer Chowrangi:** via Orangi Town, Banaras, Paposh Nagar, SITE Area, Golimar, Garden, PIB Colony, Jail Chowrangi, Bahadurabad, Baloch Colony, Mehmoodabad, Manzoor Colony, DHA Phase I, KPT Interchange and Shan Chowrangi	29.6 Km
Route 7 (Karachi)	**Mosamiyat to Baldia Town:** via Gulzar-e-Hijri, Gulshan-e-Iqbal, Federal B Area, North Nazimabad, Orangi Town and Qaddafi Colony	28.4 Km
Route 8 (Larkana)	**Larkana Bus Terminal to Larkana Junction:** via Indus Highway, 7 Naka Bridge, Gharib Nagar, Naudero Chowk, Shahi Bazaar, Ansari Mohalla and Station Road	5.97 Km

1.1.2 Parking spaces at each turn around point will be provided by the Employer. However, Company will have to develop basic requirements at all such spaces.

1.2 Procurement of Fleet

1.2.1 The Company will procure a fleet of 250 low entry diesel-hybrid city buses as per specifications provided with a following breakup:

- ✓ 150 low entry diesel-hybrid city buses of 12 m in length and
- ✓ 100 low entry diesel-hybrid city buses of 8.5 m in length.

1.2.2 The decisions regarding maintenance of reserved fleet will remain with the Company. The Employer requires un- interrupted operations in accordance with the requirements and standards set out in this document.

1.2.3 The Company shall procure spare parts for first year of operations from the Sub-Supplier.

1.2.4 The Company shall procure maintenance tools and diagnostics equipment for all Bus Depots.

1.2.5 The Company will ensure that all Buses are locally registered, licensed, and homologated by the responsible authorities. While the Employer will be the named leads in officially registering and licensing the vehicles, the Company shall lead the facilitation of all required processes to ensure registration, licensing, and homologation.

1.2.6 The Company will be responsible to bear all the cost of inland transport and associated insurances while delivering the Buses to the designated Bus Depot. Insurances procured by the Company should include comprehensive insurance for terrorism, vandalism and sabotage. The Company shall ensure that the relevant insurances shall continue to be valid for the Term of the Agreement.

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1.2.7 The Company shall ensure that the Sub-Supplier provides driver and maintenance training programs to the Company's staff as set out in Annexure E (*Employer's Requirement*).

1.3 General

1.3.1 The Company shall allocate a unique identifying fleet number to each Bus which is to be displayed at all times. The Company shall provide Employer with an initial set of display decals for the Buses and the Company shall replace such display decals when necessary as directed by Employer from time to time.

1.3.2 The Company shall ensure that all Buses are in satisfactory operational condition (fair wear and tear excluded) so that they conform to the operational standards of a first-class intra city public transport operations as per given KPI's. This means, in particular, that all Buses should be clean and tidy, well-maintained, drive able and meeting all health and safety requirements.

1.3.3 The Employer, its representatives and independent expert shall be entitled to conduct random inspections of any Bus during the operating term under the Agreement.

1.3.4 The Employer shall be entitled to prohibit the use of a particular Bus if any inspection reveal any defects and/or health and safety issues which renders the Bus unsuitable for operations on the designated routes. The prohibition of use of any Bus shall not in any way release the Company from any of its obligations pursuant to the Agreement. The Company shall be fully responsible for the Buses allocated to it, while in its possession.

1.3.5 The Employer will reroute or cancel the routes that are overlapping in length for more than 30% of the proposed route. The Employer will take reasonable steps to ban any illegal public transport such as Qing chi's operating on the proposed routes. Auto-Rickshaws (i.e. three wheelers which operate as a Para Transit) will not be banned on the proposed routes.

1.3.6 However, following existing public transport routes will be exclusive of such cancellation / re-routing as described in above paragraph i.e.1.3.5. Operating Committee will review status of the following routes every 6 months to take any further necessary actions.

- D-1
- P-1
- 9C
- W-11
- 7 Star Coach
- Bilal Coach

1.3.7 Determination of overlapping route will be based on the length of the overlap.

1.4 Drivers

1.4.1 The Company shall, by no later than ten (10) days after the Commencement Date and/or the appointment of a driver and conductor, furnish to the Employer in respect of each driver, copies of an appropriate valid driver's licence (PSV License).

1.4.2 The Company shall deliver to the Employer a list of drivers/conductors (in the form satisfactory to the Employer) by not later than two (2) business days after

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the Commencement Date, which list shall be updated on a monthly basis for the duration of the Operating Period and which may be provided to the Employer by way of an exception report indicating the incoming and exiting drivers.

1.4.3 Where the Employer has reason to believe that a driver poses a risk to the safety of passengers, or where a member of the public requests the Employer to investigate the conduct of a particular driver or conductor of the Company, the Employer shall notify the Company in writing accordingly (setting out to the extent available grounds for complaint), and the Company shall be obliged to take all such steps as may be necessary, including, where appropriate, conducting an immediate investigation into the allegations and if appropriate, effecting the suspension of such driver pending the finalisation of appropriate disciplinary action. The Company shall report on the investigation to the Employer and if any disciplinary enquiry is instituted, the Company shall report the outcome thereof to the Employer immediately upon such enquiry being completed. If requested by the Employer, the Company shall be required to immediately replace any driver or conductor.

1.4.4 All drivers will be provided with unique ID.

1.5 Training of the Drivers & Conductors

1.5.1 The Company shall ensure that by the Commencement Date sufficient drivers and conductors as required to Operate the Buses have attended and completed any training sessions as may be held by the Sub-Supplier (and/or the Employer) and that such drivers have obtained the relevant driver's licences and have reached the necessary proficiency to Operate the Buses.

1.5.2 For the operations of the 12 m Buses, the Company along with Sub-Supplier shall provide driver training program to Bus drivers. Each trainee driver shall spend at least eight (8) hours in the actual road testing of a Bus during the course of the training program. All related fuel expenses for this training will be borne by the Company.

1.5.3 For the Operations of 8.5 m buses, the Company along with Sub-Supplier shall provide driver training program to bus drivers. Each trainee driver shall spend at least eight (8) hours in the actual road testing of a Bus during the course of the training program. All related fuel expenses for this training will be borne by the Company.

1.5.4 The Employer shall be entitled to perform regular spot checks and examinations in order to ensure that the skill levels of drivers are maintained in accordance with Employer's requirements.

1.5.5 The Company shall also, at its own cost, ensure that drivers, conductors or other appropriate Company's personnel are trained properly to operate public service buses. The training shall include understanding of operational standard operating procedures (SOP), scheduling, fare collection, intelligent transport system (ITS), communication equipment operation and other requirements of operations.

1.6 Uniforms

1.6.1 The Employer requires all employees of the Company including those required to fulfil their duties in view of the public to wear uniforms at all relevant times during the rendering of the O&M Services. The Company shall ensure that its employees are appropriately attired in the prescribed and/or agreed uniforms.

1.6.2 The Company is expected to provide 3 designs before start of the operations and Employer will select 1 out of 3 for bulk production.

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1.6.3 The Company shall take such reasonable steps as may be necessary to ensure that the uniforms are kept in good condition and worn in a professional manner and in accordance with the high standards required by Employer in relation to the branding.

1.6.4 Following Staff Uniforms will be required:

- ✓ Bus Driver: Male & Female
- ✓ Bus Conductor: Male & Female
- ✓ Maintenance Staff – Dry, Wet & Cleaning: Male Staff Cleaning

1.7 Public relations

1.7.1 In order to ensure that the O&M Services are rendered in a seamless manner and that the Operations of the Buses for the Project as experienced by members of the public are consistent with Employer's expectation of a high-quality public transport system and are regarded as such by the general public and passengers, the Company shall ensure that its employees:

(a) communicate with passengers and members of the public in a customer-friendly, professional and helpful manner;

(b) conduct themselves professionally at all times, behave in a manner befitting the Project image and brand;

(c) refrain from conduct which may bring the Employer and the Project into disrepute; and

(d) deal with customer complaints in a responsive and courteous manner.

1.7.2 In complying with clause 1.7.1, the Company shall ensure that all employees receive appropriate training in the following areas:

(a) service requirements of passengers with disabilities;
(b) management of confrontational or difficult passengers;
(c) occupational health and safety issues;
(d) customer care and customer relations;
(e) the role of a driver;
(f) the role of a conductor
(g) inspection, dispatch and supervision of services;
(h) compilation of claims;
(i) passenger safety, which shall include, amongst other things, procedures pertaining to safe embarking and disembarking of passengers and ensuring that Bus doors are closed only when it is safe to do so.

1.7.3 Should the Company become aware of any employee that is not fit and proper to execute his/her duties effectively, the Company shall take appropriate action immediately. If requested by Employer, the Company shall be required to immediately replace any employee.

1.8 Passengers

1.8.1 For the duration of the Operating Period (under the Agreement) and subject always to Employer's Instructions issued by Employer from time to time, the Company shall be required to:

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(a) collect and hand over any lost property to the Employer for further necessary action;

(b) display any information provided to it by the Employer for display on Buses or flags on special events;

(c) ensure that employees are able to inform customers/passengers regarding timetables, routes, fares, basic way-finding information and other transport services;

(d) remedy any damage and/or mistakes regarding any signage on the Buses; and

(e) respond to any complaints forwarded to it by the Employer within three (03) days through complaint route management system or directly.

1.8.2 The Company shall ensure that up-to-date timetables and fare tables are displayed at all times on Buses. The Company shall provide and maintain at least 25 stickers inside each Bus on the size prescribed by the Employer.

1.8.3 The Company shall be responsible for Operation and Maintenance of the air conditioning system in the Buses in order to ensure that during operations average interior temperature is between 23°C and 25°C when the outside ambient temperature is higher than 25°C. The air conditioning system shall be capable of reaching the targeted interior temperature of between 23°C and 25°C within thirty (30) minutes of Bus operation when the ambient temperature is up to 45°C. The system shall continue to provide a cooling function until a cut-off temperature of 50°C.

1.9 Capacity

1.9.1 The provisional number of passengers that may be carried in a particular Bus, including all seated and standing passengers, is ninety (90) for 12-metre Buses and sixty (60) for 8.5-metre Buses. The afore stated permitted capacity of passengers in the Buses may from time to time be changed by the Employer to meet and/or optimize the requirements of the Employer and the Project.

1.10 Image, Marketing and Advertising

1.10.1 The Company shall comply with instructions from the Employer from time to time regarding branding in terms of the use of graphics, information, signage, information, advertising and Bus livery and will co-operate with and participate in agreed marketing programs as directed by the Employer.

1.10.2 The Company will be entitled to exploit the potential for non-fare revenue (NFR) both inside and outside of the Buses and Bus Station with a prior approval from the Employer. In the event, any approvals in relation to the exploitation of NFR are required to be obtained from any other relevant authority, the Employer will facilitate and ensure close coordination with the Company in obtaining such approvals from such authority.

1.11 O&M Plan

1.11.1 The O&M Plan to be provided by the Company should, at the minimum, include the following details of the Company's plans for rendering the O&M Services:

(a) all activities of the Company to ensure that the O&M Services operate in accordance with the Dispatch Schedule and Headway Targets;

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(b) works and processes to be implemented by the Company in order to ensure its compliance with all labor, employment, occupational health and safety regulations and standards applicable to the O&M Services;

(c) the organisation of the Planned Maintenance processes and activities;

(d) the Planned Maintenance processes and the location at which the Maintenance will take place;

(e) all Planned Maintenance activities inclusive of its proposed frequency;

(f) the organisation/protocols for any Unplanned Maintenance processes and activities;

(g) the Unplanned Maintenance processes and the location at which the Maintenance will take place;

(h) quality management processes to assure the quality level of all maintenance activities (including KPIs, test procedures, audits, frequency, etc.);

(i) all activities of the Company to ensure safe disposal or recycling of any oil, lubricant or water containing any variation of such lubricant in accordance with the applicable Law.

1.12 Depot Utilization

1.12.1 Route wise depot allocation is provided in Annexure F *(Route Description)*. All depots will strictly be used for bus operations purposes only.

1.12.2 The Company shall develop infrastructure on all Bus Depots for operational purposes including washing such as automatic washing plants and fuelling facilities, generators and any other equipment deemed necessary for the operations by the Company at all depots. The design of each depot will by developed by Company and approved by the Employer before the start of on-field execution.

1.12.3 The Company is required to develop basic command and control centre on any of the depots to keep a track of overall operations. As minimum requirement, the Company should provide the following ITS equipment:

- Automatic Fare Collection System
- Real Time Passenger Information System
- Automatic Vehicle Location System

1.12.4 The Company is required to develop management/administrative office at each depot to manage the operations. Only permanent structures will be constructed at all depots for operations. No temporary structures such as portable cabins will be used.

1.12.5 The Employer will grant non-exclusive license for use of the Bus Depot to the Company.

1.12.6 Unless expressly stated otherwise, the Company shall, at its own cost, be responsible for all the Operation and Maintenance of the Bus Depots, including but not limited to:

(a) access control of staff and Buses to the Bus Depot;

(b) the Bus Depot maintenance and cleaning, including all signage and facilities (Bus washing, Bus fuelling, Bus Maintenance);

(c) parking Buses when not used only inside the Bus Depot;

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(d) maintenance of landscaping inside Bus Depot ;

(e) All utility bills related to Bus Depots Facility;

(f) Security and surveillance of all Bus Depots.

1.12.7 The Employer shall provide electricity and water connection inside the Bus Depots. The Company shall be responsible for all costs associated with the consumption of aforementioned utilities at the Bus Depots. All other utility connections which Company may deem necessary for conducting its operations shall be arranged by the Company at its own cost.

1.12.8 The Company shall hire a sub-contractor to execute all civil works at the depot related to operations. The sub-contractor must meet the minimum requirements as per Pakistan Engineering Council (PEC) guidelines as may be applicable to such contractors.

1.12.9 Roads leading to the Bus Depots will be repaired by the Employer prior to the commencement of the operations.

1.13 Bus Stops

1.13.1 All bus routes are provided primarily on major arterials of Karachi. Hence most of the routes have existing bus stops that can be used by the Company for boarding and alighting of passengers. The list of Bus Stops for Each Route is provided in Exhibit 1.

1.13.2 The Company is required to upgrade (wherever necessary) these bus stops to workable condition with some shed for passengers.

1.13.3 The Company will use these bus stops only for B&A of passengers and buses will not be allowed to stop anywhere else en-route.

1.13.4 Additionally, the Company is also required to provide bus shelters at locations where existing bus stops are not available on the route.

1.14 Maintenance of the Buses

1.14.1 Initial Maintenance Period

(a) The initial maintenance period shall run for one (1) year of the delivery of the Buses as confirmed in the Bus delivery and acceptance protocol signed by the Company and the Employer ("**Initial Maintenance Period**").

(b) During the Initial Maintenance Period the Sub-Supplier will supervise Maintenance of Buses by the Company at its own cost. However, it is the Company who shall, at all times during the term of the Agreement, including the Initial Maintenance Period, remain responsible for Maintenance and repairs of all Buses in accordance with the Sub-Supplier requirements, and/or recommendations and the provisions of the Agreement. The cost of Maintenance and repairs of the Buses shall be borne by the Company during such Initial Maintenance Period.

1.14.2 Maintenance staff training

(a) The Company is required to provide suitably qualified staff to maintain all the Buses ("**Maintenance Staff**") during the Term of the Agreement, including the Initial Maintenance Period.

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(b) The costs of the Maintenance Staff shall be borne by the Company.

(c) The Maintenance Staff shall be trained by the Sub-Supplier in two phases: the initial and the final phase explained in detail under maintenance training program provided in the Annexure E – Employer's Requirements.

1.14.3 Detailed maintenance obligations

The Company's Maintenance and repair obligations shall include, but not be limited to:

(a) repair and/or replacement of tyres and/or wheels subject to accident damage, excessive wear and tear and uneven wear and the Company shall at all times adhere to the tyre specifications as determined by the Employer from time to time;

(b) supply and top-up of lubricants;

(c) supply of fuel and fuel additives;

(d) any repair or replacement required, necessitated or caused as a result of, or generally resulting from, or in connection with, the following:

(i) accidental or intentional damage;
(ii) labour disturbances attributed to the Company's employees;
(iii) improper or negligent use of the Buses;
(iv) use of the Buses in breach of the terms and conditions of the Agreement;
(v) incompetence of the Company or the employees, subcontractors or any third party in driving, handling, working, or otherwise dealing with the Buses;
(vi) servicing, maintenance or repairs to the Buses;
(vii) minor repairs strictly necessary and carried out in an emergency situation or breakdown;
(viii) shock loading conditions and/or adverse driving conditions (and including, but without limitation, the exceeding of legally permitted gross Bus and/or gross combination mass (provided that the Bus is equipped with the technology to inform the driver when such mass is exceeded), speed limits and/or RPM (revolutions per minute);
(ix) the theft of the Buses;
(x) failure to comply with the manuals applicable to Buses, provided that the manuals have been furnished to the Company;
(xi) failure or malfunction of any component or equipment which is not provided by a Sub-Supplier installed on the Buses, as approved by the Sub-Supplier and Company in circumstances where such component or equipment ought to have been provided (or approved) by a Sub-Supplier and Company, as the case may be;
(xii) the use of contaminated or non-bus sub-supplier approved fuels, additives and/or lubricants;
(xiii) the repair or replacement, as the case may be, of or to the paintwork, chrome, trims (including but without limitation,

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carpets, seats, railings and handles), emblems, body work, upholstery, cab structure, windscreen, mud flaps, windows and glass generally, bulbs, the repair of any road and stone damage to the paintwork;

(xiv) attending to breakdowns and generally delivery to or collection or transportation from the point of service, salvage or breakdown (other than as set out above or below);

(xv) jump-starting the Buses;

(xvi) work done outside operating hours, regarding attendance to breakdowns and regarding emergency repairs;

(xvii) non-compliance by the Company with any other obligations under the maintenance provisions specified in the Agreement;

(xviii) theft of the Bus equipment and components;

(xix) tampering with the Bus odometer, controls and any other specialised Bus equipment;

(xx) operating the Buses in a manner that may harm the Buses' electrical and driveline components;

(xxi) the Bus component damage due to the Company's negligence in checking and maintaining oil, lubricant and fluid levels as stipulated in the applicable Sub-Supplier operating manual;

(xxii) operation of the Bus on routes and road surfaces for which the Bus was not designed unless specifically authorised by the Employer.

In addition, the Company shall, among other things:

(a) perform the required regular checks, in accordance with the manuals (which shall be furnished to the Company) and including the checking of coolant levels, lubricant levels, tyre pressure and the like and the introduction of anti-freeze or the application of rust inhibiting agents;

(b) replace lost parts including, but not limited to, spare wheels, fire extinguishers, first-aid kits, warning triangles and lamps, tools, jack, service booklets and the like and perform any testing or maintenance of such items;

(c) wash the Buses on a daily basis (save for a complete wash of the chassis, engine, gearbox, front and rear axle, at the time of carrying out routine service and maintenance work where this is undertaken by the Sub-Supplier) and clean the interior of the Buses whenever they are departing from the Bus Depot;

(d) attend to the fitment, service or repair of any parts or equipment necessary pursuant to Applicable Law which may come into force after the Effective Date;

(e) carry out maintenance and repairs of the Buses in accordance with the Applicable Standards;

(f) carry out brake testing every five thousand (5,000) kilometres or more frequently is required by Applicable Law;

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(g) keep and use the Buses in a proper and prudent manner and ensure that only duly qualified, trained and competent drivers are allowed to drive the Buses and the Company shall, *inter alia*, ensure that the Buses are not operated improperly, negligently or in contravention of the Applicable Standards;

(h) ensure that the Sub-Supplier's running-in instructions and proper responses to systems warnings, provided at the time of supply of Buses, if any, are fully understood and properly observed by the Company, drivers and other employees of the Company;

(i) not overload the Buses nor use it for any purpose for which it is not designed;

(j) ensure that no components of the Buses are removed or exchanged except where defective and in the course of normal service, repair or replacement and generally ensure that the Buses are operated in a complete condition;

(k) ensure that regular checks are made by the Company of all oils, coolants, additives and electrolyte levels and that such levels are correctly maintained in accordance with the manuals;

(l) take all reasonable steps and precautions to minimise damage to the Buses and in particular, but without limitation, in the event of any defect or failure occurring in the Buses;

(m) service the Bus at the relevant intervals in accordance with the relevant Applicable Standards, Buses' manuals and the Employer's Instructions;

(n) promptly repair the Buses in accordance with the relevant Applicable Standards, Buses' manuals and Employer's Instructions;

(o) allow authorised Employer's representatives access to the Buses and for this purpose ensure that such representatives are permitted to enter into the relevant Bus Depot for this purpose, for the duration of the Term of the Agreement;

(p) ensure that only the prescribed fuel and additives as prescribed by the Sub-Supplier are used;

(r) in the event that the Company proposes to use any alternative to the additive as prescribed by the Sub-Supplier, first obtain authorisation from the Employer and reasonable conditions may be imposed;

(s) cause the Buses to be used only for their specified use;

(t) be responsible for Maintenance and repair of all subsystems and equipment in Buses and recoup any missing or theft items;

(u) allow the Employer's authorised representatives and Independent Expert to inspect the Buses, have access to and be entitled to, download, all information available from the Buses (whether from onboard computers or otherwise) including the kilometers travelled by the Buses;

(v) be responsible for all daily pre-trip checks prior to the Buses leaving the Bus Depots, including necessary functionality checks in relation to the on-board units.

1.15 Operating and control procedures

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1.15.1 The Employer's team is responsible for issuing the Dispatch Schedule and Headway Targets including assigning the Routes for the Company.

1.15.2 The Company shall carry out the O&M Services in accordance with the instructions issued by Employer (whether directly or indirectly through the Operations Control Centre) and in accordance with the Dispatch Schedule and Headway Targets issued by the Employer from time to time.

1.15.3 The Company shall be required to Operate the Buses in accordance with the Dispatch Schedule and Headway Targets (provided by Employer) unless within two (2) days of receipt of such Dispatch Schedule and Headway Targets, the Company requests the Employer for an alteration in the Dispatch Schedule and Headway Targets. Provided, however, any such alteration shall only be made with the prior written approval of Employer.

1.15.4 Furthermore, the Company shall within three (03) days of receipt of the Dispatch Schedule and Headway Targets, prepare and submit to Employer details the dispatch of specific Buses and Bus personnel for each trip (in accordance with the Dispatch Schedule and Headway Targets.

1.15.5 Unless otherwise instructed by Employer and except for public holidays the regular hours for the passenger services shall be from 0600 hours to 2300 hours each day ("**Operations Hours**").

1.15.6 Employer's team and/or representatives may at any time serve a notice outlining its requirements for change of the Dispatch Schedule and Headway Targets ("**Dispatch Schedule and Headway Targets Change**"), for example, specifying the number of services that are to be added to, or removed from, any Route by time band, the approximate times at which any services are to be added or removed or the changes to the passenger services to be made as a result of a Route adjustment.

1.15.7 The Company is required to comment on the Dispatch Schedule and Headway Targets Change by the deadline specified by Employer. In its comments the Company shall identify if the Dispatch Schedule and Headway Targets Change would have any impact on the Company, its O&M Services, or KPIs. In particular, the Company shall identify if, notwithstanding the use of all prudent commercial endeavours, it would be unable to meet the amended timetabled journey times.

1.15.8 Employer shall amend the Dispatch Schedule and Headway Targets to incorporate that Dispatch Schedule and Headway Targets Change, and submit a final electronic and hard copy version of the revised Dispatch Schedule and Headway Targets to the Company no later than seven (7) days prior to the date the change of the Dispatch Schedule and Headway Targets is to take effect.

1.15.9 The Employer's team will be responsible for preparation of the Dispatch Schedule and Headway Targets and provide the Dispatch Schedule and Headway Targets or a revised Dispatch Schedule and Headway Targets to the Company no later than seven (7) days prior to the end of the calendar month for which it is intended to be implemented.

1.15.10 The Operations and scheduling of the Buses by the Company shall correspond to the Dispatch Schedule and Headway Targets. The Company shall be responsible to ensure that each Bus at the end of each month shall have travelled a similar number of kilometres.

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1.15.11 Employer's team may change the Dispatch Schedule and Headway Targets and submit revised Dispatch Schedule and Headway Targets from time to time, provided any change is notified at least seven (7) days before its coming into effect.

1.15.12 With respect to the controlling, the Employer's team in coordination with Operations Control Centre will keep track of the performance of the Buses vis-à-vis the Dispatch Schedule and Headway Targets, give instructions to drivers to optimize Operations; instruct the dispatchers to inform the passengers and shall optimally respond to incidents that negatively affect the Operations. The Employer team will take all relevant inputs to optimize controlling the Project.

1.15.13 Company can propose route alteration at a later stage, however, the right to approve any change will solely remain with the Employer.

1.16 Monthly Operations Reports

1.16.1 No later than 17:00 pm on the 5th (fifth) business day of each month, starting on the last business day of the first calendar month after the Commencement Date, the Company shall submit to Employer a report on the performance of its obligations under the Agreement during the previous month ("**Monthly Operations Report**"), covering at a minimum:

(a) road safety performance, including full details on any severe accident, material accident, minor accident, emergency or traffic offence;

(b) punctuality performance, including full details on percentage of untimely departures, actual headway time and excess headway time;

(c) Bus performance, including full details on any severe Bus defect Maintenance (including Planned Maintenance and Unplanned Maintenance on the Buses) and Operations on the Buses;

(d) other indicator as agreed between the Company and Employer or identified by the Company in its O&M Plan;

(e) any improvement of the O&M Services, including full details on any relevant passenger complaint, any suggested adjustment of the Dispatch Schedule and Headway Targets and any performance improvement measure taken by the Company.

1.17 Spare parts

1.17.1 The Sub-Supplier shall provide spare parts and the supply of spare parts shall cover the period from the delivery of the Buses to approximately one year. As a minimum, a certain quantity of spare parts will be kept by Sub-Supplier (on behalf of Employer) on hand at Bus Depot at all times for approximately one year. The spare parts store shall be operated by suitably qualified staff members of the Company to manage such store.

1.17.2 The Company shall be responsible of provision of all replacement parts and supplies for all Maintenance issues. The Company shall procure any spare parts and supplies pursuant to documentation provided by the Sub-Supplier or required for Maintenance and/ or Operation of Buses. All procurements, including import of spare parts, shall be made by the Company in its own name.

1.17.3 The Company will be responsible for all materials and associated costs for repair actions caused by road collisions or other unscheduled incidents and/or Unplanned Maintenance.

1.17.4 The Company shall keep record of each spare part used, reason for replacement, total spare used, remaining spare parts etc. and follow Employer's Instructions

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issued by Employer for use, record and inventory of the same. The Company shall provide to Employer such record in prescribed time or as and when requested.

1.18 Tools and equipment

1.18.1 The Company should also procure tools and diagnostics equipment's is sufficient quantities for each type of bus i.e. 12 m & 8.5 m buses.

1.18.2 The Company should have one complete set of tools and diagnostics equipment per Bus Depot for each of the 12 m & 8.5 m buses.

1.19 Required Registration

1.19.1 The Company shall procure Fitness Certificate from Transport Department, Government of Sindh (GoS) and Route Permits for Buses for the Project before the start of Operating Period.

1.19.2 The Company shall also be responsible for annual renewal of motor vehicle tax, fitness certificate and route permit from concerned departments in accordance with the Applicable Law.

1.20 Hand Held Devices in Buses

1.20.1 The Company shall procure and install hand held devices in all buses for fare collection.

1.20.2 One hand held device will be installed at the entrance gate and other hand held device will be installed at the exit gate for tap in and tap out respectively.

1.20.3 The conductor in the bus will be responsible to make sure that all passengers should do tap in and tap out while boarding & alighting.

1.21 Revenue Collection

1.21.1 The Company will be responsible for revenue collection both fare and non-fare.

1.21.2 For fare revenue collection the Company can carry out cash collection during first Operating Year. However as per Section 1.20 above, the Company has to provide/incorporate in its operation's handheld devices for fare revenue collection before start of operations. For cash collection, the Company will be responsible for the arrangement of paper-based tickets along with connecting ticket sales data through handheld devices with command and control centre with the use of ITS. Furthermore, the Company will promote card-based fare revenue collection during first year as well. Adhering to this, the Company will have to bring 200,000 fare media cards on an incremental basis within 1 year from the start of operations. The cost of these cards can be covered through branding of these cards.

1.21.3 The Company will put in all efforts to maximize the NFR potential within the permissible ambit of the Agreement.

1.21.4 For Karachi distance-based Fare structure will be provided by the Employer. The Company will charge the fare accordingly from the passengers via fare media. However, for Larkana a flat Fare of PKR 30 will be charged.

1.21.5 Table below presents the fare slab structure for Karachi:

S. No.	Distance (km)	Fare (PKR)
1	Upto 3km	25

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2	3km to 6km	30
3	6km to 9km	35
4	9km to 12km	40
5	12km to 15km	45
6	15km to 20km	50
7	20km to 25km	55
8	25km+	55

1.21.6 Fare slab specified is for the first year of operations. After the end of first year of operations, the fare (in accordance with the fare slab) will be increased by PKR 2 p.a. and at each anniversary of end of first year of operations thereafter, and the revised fare would be applicable from the start of the upcoming operational year.

1.21.7 In the event, any exemption or wavier/discount is granted to any class of users such as children, students, elderly, handicapped etc.) in accordance with the applicable laws, then the Employer shall compensate the Company for the resulting loss of fare revenue. The loss of fare revenue and the compensation payable shall be determined/calculated by the Independent Expert.

EMPLOYER'S REQUIREMENT

1. BACKGROUND

Sindh Mass Transit Authority (SMTA) (hereinafter referred to as the "**Employer**") is committed to providing safe, comfortable and efficient public transport services in various districts on Sindh in order to ensure efficient levels of mobility. To this end, the Employer seeks to procure high quality public transport vehicles for the successful operation of these services.

2. SPECIFICATIONS

Table 2.1: Vehicle Specifications

NO.	SPECIFICATION	8.5-Meter Vehicles
Section 1: Specification Components		
1.1	**Vehicles, components and training to be provided**	The Employer will be entering into the Agreement with the Company who will have to, inter alia, procure the buses from the Sub-Supplier and operate and maintain the same for the purposes of the Project.
1.1.1	Vehicle fleet size	8.5 m Low Entry Diesel-Electric Series Hybrid-Buses – 100 No. of buses
1.1.2	Spare parts package	The Company will be responsible to provide all replacement parts and supplies for all maintenance issues resulting from normal wear and tear as well as items requiring scheduled replacements. The Company will also be responsible for all materials and associated costs for repair actions caused by road collisions or other unscheduled incidents. The supply of spare parts and supplies by the Company will cover the Term of the Agreement. There shall be no vehicles unavailable for services due to the lack of spare parts at the depot site.

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NO.	SPECIFICATION	8.5-Meter Vehicles
		As a minimum, the quantity of spare parts given in Volume II of these Technical Specifications shall be kept on hand at the depot site at all times during Operating Period by the Company. If a part or supply item is replaced, the stock at the depot site shall be replenished within 20 days. At the end of first year of operations, the Sub-Supplier will also provide a final stock of spare parts and supplies at the depot facility. The quantity listed in Volume II of these Technical Specifications 4 lists the minimum spare parts that will be included in the final stock of spare parts at the depot facility. If any spare part or supply listed in Volume II of the Technical Specifications 4 is not required, the Company will make note of this non-applicability. As part of its technical proposal, the Company will indicate any additional spare parts and supplies that will be provided during the term of the Agreement. At the end of first year of operations, the Sub-Supplier will also provide documentation on how the Company will procure any future spare parts and supplies. This information will include a full list of the required spare parts and supplies along with pertinent parts order numbers, estimated lead times for delivery, and payment mechanisms and payment terms.
1.1.3	Maintenance tools	The Sub-Supplier shall deliver one set per depot of the specified maintenance tools, software, and diagnostic equipment required to repair, service, and maintain each type of vehicles. The Employer aims to stock the depot facility with an initial set of required tools that will serve the typical day-to-day requirements of vehicle repair and maintenance. The diagnostic software and equipment are required for evaluating the status of the vehicle and for directing depot staff to take necessary corrective maintenance and repair actions. As a minimum, the Sub-Supplier shall provide the following items: ▪ One set per depot of the dollies and cradles necessary for the handling of engines, transmissions and other heavy components requiring specialist handling equipment. ▪ One set per depot of all tools required for the maintenance of the principal vehicle components, including all tools for standard maintenance, repair, and re-installing of vehicle components. ▪ One set per depot of maintenance diagnostic software, with a multi-site and multi-use license.

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NO.	SPECIFICATION	8.5-Meter Vehicles
		▪ One set per depot of diagnostic equipment to evaluate the status of vehicle components, including diagnostic equipment for the engine unit, gearbox, system electronics, air suspension system, and wheel and axle alignment. Volume II of these Technical Specifications lists the minimum tools requirements to be provided by the Company at the end of the Term of the Agreement. The Company must also provide a list of any additional tools required to service the vehicles, and particularly the Company must list any specialised tool (s) requirements.
1.1.4	Warranty	The warranty shall be provided on the chassis, body, and all vehicle components to protect against any defects in design, workmanship, equipment, or materials. With the exception of the electric storage and propulsion system (i.e. battery packs and electric motors), the warranty for all other parts and components will commence from the date of delivery of the last vehicle to first year of operations. For the battery packs and electric motors, the Company/Sub-Supplier will provide all necessary replacements for 12 years or 1.2 million kilometers of service, whichever of these two milestones are realized first. The battery packs shall be replaced under this warranty whenever the battery capacity falls below 70% of its original capacity at full charge. The warranty will stipulate that the Company/Sub-supplier is responsible for all repair and replacement costs due to the premature failure of any part or component due to defects in design, workmanship, equipment, or materials. The warranty will cover all costs associated with repairs or replacements due to the actions of the Company. Among the types of repairs or replacements not covered under the warranty are road collisions or other unscheduled incidents.
1.1.5	Registration, licensing and homologation	The Company will ensure all vehicles are locally registered, licensed, and homologated by the responsible authorities. While the Employer will be the named leads in officially registering and licensing the vehicles, the Company shall lead the facilitation of all required processes to ensure registration, licensing, and homologation.
1.1.6	Cost of Inland Transport and associated insurance to Delivery Point	The Company will be responsible to bear all the cost of inland transport and associated insurances while delivering all the Goods to the designated Bus Depots. Insurances procured by the Company should include comprehensive insurance for terrorism, vandalism and sabotage.

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NO.	SPECIFICATION	8.5-Meter Vehicles
		The Company shall ensure that the relevant insurances shall continue to be valid for three (3) months after the delivery to the designated Bus Depot. The Company will be responsible for complete insurance throughout the Term of the Agreement.
1.1.7	Maintenance supervision	The Sub-Supplier shall provide vehicle maintenance supervision for a period of 12 months from the date of acceptance of last tranche of vehicle. The Sub-Supplier shall be responsible for the maintenance supervision and all tasks/responsibilities required under it since the time first vehicle will be delivered to site, however, contractual completion time of 12 months for maintenance supervision shall start from acceptance of final tranche of vehicles. During this time period, the Sub-Supplier will be responsible for overseeing all scheduled maintenance activities of the vehicles. The Company will be providing the maintenance staff who will be advised by the Sub-Supplier's Maintenance Supervisor in carrying out the routine maintenance activities. The Sub-Supplier shall ensure that sufficient maintenance is applied during the 12-months period so that at least 98% of the fleet will be operationally available at any time during system operating hours. "Operationally available" means that the vehicles are in a functional condition that could be utilized in customer services without any restrictions while meeting all requirements in this Technical Specification. The Maintenance Supervisor position will be full-time (i.e. 40 work hours per week). The maintenance supervision activities will take place at the depot site. The Maintenance Supervisor will work closely with the Employer to appropriately schedule his/her time at each depot site. During the period of maintenance, the Sub-Supplier shall be responsible for supervising all scheduled maintenance activities of the vehicles. The maintenance services will include but not limited to engine tuneup, lubrication, replacement of filters, coolant, spark plugs, fuses, worn wiper blades, worn brake pads and linings or worn clutch linings, replacement of tires (if required), batteries, air conditioning. The Sub-Supplier shall also provide all replacement parts for all maintenance items caused through normal wear and tear as well as scheduled replacements. Conversely, the Company will be responsible for all repair actions caused by road collisions or other

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Employer's Initials

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Company's Initials

NO.	SPECIFICATION	8.5-Meter Vehicles
		unscheduled incidents mentioned in next para. The Company shall also be responsible for any maintenance arising out of the following: ✓ Repairs and adjustments required as a result of racing, overloading, negligence, modification, alteration, tampering, disconnection, improper adjustments or repairs, accident and use of add-on-parts/material. ✓ Cosmetic or surface corrosion from stone chips or scratches in the paint. ✓ Damage or Surface corrosion from the environment such as acid rain, air borne fall out (chemicals, tree sap, etc.), salt, hail, windstorms, lightning, floods, other acts of God and the like is not covered. ✓ Repairs and adjustments caused by improper maintenance not carried out by the Company, use of fluids other than the fluids specified in manufacturer's manual. ✓ Normal noise, vibration, wear, tear or deterioration such as discoloration, fading, deformation or blur.
1.1.8	Maintenance training program	The Company shall deliver or cause to be delivered a maintenance training program that will properly enable its personnel to independently maintain its vehicle fleet after the end of first year of operations. The training program will take place at intervals over at least 150 hours of actual training sessions. These sessions will include both classroom instruction as well as hands-on repair work in the depot maintenance area. Approximately 5 persons from Company will be trained. At the end of first year of operations, the Sub-Supplier will also deliver a second set of training sessions. These sessions will specifically address future maintenance issues to be faced by the Company's personnel. In particular, this final training will focus on any potential engine rebuild work or battery pack replacement work that would be required. This second set of training sessions should cover at least 20 hours of training. Approximately 5 persons from the Company will be trained in this final training program. The schedule of the maintenance training program is: i. Phase I - Completion of the first maintenance training program: Within maximum of six (6) months from Effective Date ii. Phase II - Completion of the second and final maintenance training program: At the end of first year of operations.
1.1.9	Driver training program	In order to facilitate a disciplined operation of the vehicle fleets, the Company shall implement a driver training program that will instill safe and professional driving skills.

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NO.	SPECIFICATION	8.5-Meter Vehicles
		The training course will culminate in the drivers receiving a course (competency) certificate indicating driving proficiency. The driver training program will prepare the drivers to undertake licensing exams under Applicable Law to operate large public transport vehicles. Approximately [200] vehicle drivers over a period of two months. Each trainee shall spend at least 8 hours in the actual road testing of a vehicle during the course of the training program. All related fuel expenses for this training will be borne by the Company. The selection of the drivers for the course will be the responsibility of the Company. The Company will also have to arrange the venue for conducting such training sessions. A total of 80 hours of training, both classroom and road testing, shall be delivered (4 hours per day for 4 weeks). Drivers will be available for training for four hours per day, 5 days per week during a period of at least 4 weeks. The course topics will include: ▪ Driving skills ▪ Traffic regulations ▪ Safety ▪ Emergency protocols ▪ Customer service ▪ Public transport license testing. The actual testing for a National public transport driver's license will be the responsibility of the Company. The Company will be responsible for all testing costs, such as application fees. The schedule of driver training program is: i. Commencement of driver training program: Within maximum of six (6) months after the Effective Date. ii. Completion of driver training program: Within maximum two (02) months after the commencement of driver training program.
1.2	**Fleet Delivery Schedule**	i. Completion of first full unit at Factory: Sixty (60) days from the date of the Effective Date. ii. Delivery of single batch/tranche of vehicles comprising of a full (100%) of the 8.5-meter vehicle quantity: within 90 from the date of Approval of Final Production Bus Design.
1.3	**Approval process**	As per the relevant provisions of the Agreement including the approvals set out in the Agreement Document.
1.4	**Payment Schedule**	As per Schedule R *(Schedule of Payment Milestones)* of the Agreement.

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Section 2: Specifications Summary		
S. No.	**Criteria**	**Specification**
1.	Model year	2020 or latest
2.	Vehicle length (minimum - maximum)	8.0 – 9.0 meters
3.	Vehicle width (not including mirrors)	2.55 meters
4.	Vehicle height (from road surface to highest point on roof) (maximum)	3.5 meters
5.	Floor height (from road surface to interior floor at doorways)	90 buses of 350 mm for Karachi and 10 buses of 650 mm for Larkana.
6.	Ceiling height in front passenger area (from interior floor to ceiling) (minimum)	2.1 meters
7.	Clearance at doorway (from interior floor to door header) (minimum)	1.9 meters
8.	Axle load, front axle (maximum)	6,000 kg
9.	Axle load, middle axle	Not Applicable
10.	Axle load, rear-axle (maximum)	10,000 kg
11.	Grade ability (Fully Laden)	Min 15%
12.	Angle of Approach (Fully Laden)	>=7 degrees
13.	Angle of Departure (Fully Laden)	>=7 degrees
14.	Steering	Driver compartment on right- hand side of vehicle for vehicle operation on left-hand side of Roadway. Power Steering hydraulic assisted with height and angle adjustment
15.	Useful life of vehicle (projected)	1.2 million km or 12 years
16.	Number of median-side passenger doorways	N/A
17.	Center-line distance between the two doorways	2.7 meters
18.	Free door width per passenger door (minimum)	800mm for Front Door with Single Panel 1200mm for Rear Door with two Panels
19.	Number of curb-side passenger doorways	2
20.	Number of manual flap-type boarding bridges from curb-side doors	(at middle door)
21.	General seat configuration	2 x 2 (predominantly)
22.	Seat pitch (minimum)	730 mm
23.	Seat width (minimum)	420 mm
24.	Number of passenger seats (including preferential seats but excluding flip down seats and driver seat) (minimum)	18
25.	Number of wheelchair bays (minimum)	1

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26.	Total number of flip-down seats in wheelchair bay(s) (minimum)	2
27.	Length of wheelchair bay(s) (minimum)	1.3 meters each
28.	Number of seats in front women-only section (minimum)	6
29.	Thickness of flooring material (minimum)	2 mm
30.	Side window height (minimum)	980 mm
31.	For the median side (right-side) of the vehicle, distance of outside edge of the wing mirror from the vehicle body (maximum)	150 mm
32.	For the curb side (left-side) of the vehicle, distance of outside edge of the wing mirror from the vehicle body (maximum)	200 mm
33.	Tire width	255 mm
34.	Tire construction type	Radial
35.	Distance between outside edge of tire sidewall to outside edge of vehicle body for front axle (maximum)	125 mm
36.	Distance between outside edge of tire sidewall to outside edge of vehicle body for middle axle (maximum)	Not Applicable
37.	Distance between outside edge of tire sidewall to outside edge of vehicle body for rear axle (maximum)	80 mm
38.	Power ratio (minimum)	15 HP per ton gross vehicle mass
39.	Power on gradient (minimum)	Maintain 50 km/hr on 4% up grade and 30 km/hr on 8% upgrade when fully loaded
40.	Projected maximum operating speed (maximum)	80 km/hr
41.	Propulsion system	Diesel-electric series-parallel hybrid
42.	Size of electric motor for propulsion system (minimum)	100 kW
43.	Internal noise standard (maximum)	80 dB
44.	External noise standard (maximum)	85 dB
45.	External noise standard when idling (maximum)	65 dB
46.	Turning radius, outer wheel track (maximum)	12.0 meters

Section 3: Legislation and Standards		
3.1	**National legislation and standards**	All vehicles shall comply with all national, provincial and local legislation, regulation or by-law as well as with the relevant national standards. The Company is expected to be fully familiarized with the legal requirements of public transport vehicles, of the types proposed, in the given national context.

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Section 4: Weights and Dimensions		
4.1	**Axle loads**	The vehicle axles must be capable of operating with the following maximum loads: ▪ Front axle: 6,000 kg ▪ Middle axle: Not Applicable ▪ Rear axle: 10,000 kg
4.2	**Overall vehicle width**	The vehicles shall meet a targeted width of 2.55 meters, as measured from one exterior side to the other (excluding wing mirrors). This dimension shall be achieved within a set range of between 2.54 meters to 2.56 meters.
4.3	**Floor height**	The vehicles are to be low entry, allowing ease of access for the curb-side boarding. The targeted floor height, based on the distance from the road level to the floor of the vehicle at the doorways, is **350 mm for 90 buses for Karachi and 650mm for 10 buses for Larkana.** This dimension must be achieved within a tolerance of +/- 10 mm even when the vehicle is unevenly loaded with passengers bunching on one side. The rear portion of the vehicle (i.e. the portion of the vehicles after the last doorway) may be raised with steps.
4.4	**Vehicle length**	The vehicle length may be in the range from 8.0 meters to 9.0 meters.
4.5	**Interior floor to ceiling**	The interior clearance height (from the vehicle floor to the ceiling) for the front passenger area shall be a minimum of 2.1 m. The interior clearance height (from the aisle way floor to the ceiling) for the raised rear passenger area shall be a minimum of 1.85 m. At the doorways, the minimum clearance height, from the vehicle floor to the door header, shall be 1.9 m. The Sub-Supplier is encouraged to maximize ceiling clearance heights.

Section 5: Body		
5.1	**Structure**	The body shall be designed to meet a useful vehicle life of 12 years or 1.2 million kilometers, whichever of these two milestones arrive first. The body shall be reinforced at joints where stress concentration may occur. The vehicle shall safely withstand road shocks and other conditions found in urban services. Body paneling shall have adequate thermal and acoustic properties and shall not vibrate unduly while the vehicle is in operation. The structure shall meet the compliance standards for the rollover test stipulated through Regulation 66 of the United Nations Economic Commission for Europe (ECE-R66).

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5.2	**Materials and corrosion resistance**	High strength corrosive-resistant material shall be used in construction of the body. Mild steel is the minimum requirement for the vehicles. The use of materials with superior strength, corrosion resistance, and overall durability is encouraged. The use of stainless steel alloys (such as 3CR-12), high-carbon steel, glass-reinforced plastic (GFRP), aluminum, and other materials should be considered, particularly for critical sections of the body and structural elements.
5.3	**Body Shape**	This new public transport project represents an overall transformation of public transport for the metropolitan areas of various districts of Sindh. The aesthetics of the vehicles will play a significant role in transforming the public's perceptions of public transport services. The Employer therefore requires a body design that evokes a modern, tram-like appearance with sleek and aerodynamic curve lines. This visual effect can be achieved by: i. a rounded vehicle front with a curved windscreen; ii. a slanted vehicle front; or iii. a rounded augmented body piece added to the front roof-line of the vehicle. Option 1 (curved vehicle front) and option 2 (slanted vehicle front) may also include the rounded augmented body piece on the roof-top (option 3). A flat vehicle front with no rounded, aerodynamic features will mean that the bus will be considered non-responsive to the technical specifications.
5.4	**Conduciveness to washing**	The exterior and body features, including grilles and louvers, shall be shaped to allow complete and easy cleaning by an automatic vehicle washer without snagging washer brushes. Water and dirt should not be retained in or on any feature of the vehicle after leaving the washer.
5.5	**Painting**	
5.5.1	Vehicle livery	Vehicle exteriors shall be painted to the graphic design submitted by Employer. The details of the final design shall be provided during the pre-production period.
5.5.2	Painting of vehicle body	The painting of the vehicle shall employ modern best practice. Paints shall produce a superior finish that will support efforts to position the system as a choice option for all passengers. It is preferred that the paint materials and application procedures utilized will be as environmental-friendly as is practically possible, including consideration of water-based paints. The paint shall be hard wearing and able to withstand the operating conditions of an urban bus. Such wear resistance shall include the ability to withstand regular machine-washing of the vehicles. The process and materials used shall be such as to allow ready repainting of minor scratches and

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		scrapes. All primers, sealers, paint and any other materials used shall be compatible to assure chemical bond, adhesion, overall gloss retention, and to assure full warranty by the manufacturer. The finish coat shall be free of runs, sags, and areas of no gloss. There shall be no bare or exposed metal surfaces showing on the exterior of the vehicles. If vehicle components are to be imported and shipped via sea, then a special coating shall be applied to protect against damage from sea spray. It is to be noted that there will be advertisements on the external side of the bus to exploit Non-Fare Revenue Potential. Hence the paint should be such that it facilitates the purpose.
5.5.3	Undercoating	The underside of the under-frame, flooring and stepwells, wheel-housings and all exposed underfloor surfaces shall be treated with a fire-retardant coating.
5.6	**Doorways**	
5.6.1	Number of passenger doors and dimensions	The vehicle shall have two curb-side passenger doorways. The distance between the centerline of the first and the second for both median side and curb side shall be 2.7 m. Each doorway will provide a minimum free width of 1.2 m for ease of passenger entry and egress. The minimum clearance height at the doorway shall be 1.9 m.
5.6.2	Door type and characteristics	Doors should be two-leaf inward swinging doors. Structure of the doors, their attachments, inside and outside trim panels, and any mechanism exposed to the elements shall be corrosion-resistant. Door panel construction shall be of corrosion-resistant metal or reinforced non-metallic composite materials. The doors, when fully opened, shall provide a firm support and shall not be damaged if used as an assist by passengers during ingress or egress. Door edges shall be sealed to prevent infiltration of exterior moisture, noise, dirt and air elements from entering the passenger compartment, to the maximum extent possible based on door types. The closing edge of each door panel shall have no less than 5 cm of soft weather stripping. The doors, when closed, shall be effectively sealed, and the hard surfaces of the doors shall be at least 10 cm apart (not applicable to single doors). The combined weather seal and window glazing elements of the front door shall not exceed 10 deg of binocular obstruction of the driver's view through the closed door.

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5.6.3	Opening / closing mechanism	Doors shall be electro-pneumatically operated by the driver and shall be able to be opened or closed independently or in unison with each other. System shall include an audible announcement that informs passengers when the doors are either about to open or close. Door movements shall also be shown by luminous indicators. The indicators shall show red when the door is closed and orange when the door is open. For future provisioning vehicle door opening and closing shall be wirelessly communicated to the sliding doors at the station interface. The design of the wireless communication and the actual activation of the station doors must be approved by the Employer prior to installation. The following requirements must be met: ▪ The activation of bus door opening/closing must be linked and coordinated with the station doors opening/closing. ▪ The station doors will open 0.5 to 1.0 seconds after the vehicle doors and close 0.5 to 1.0 seconds before the vehicle doors. This must also be coordinated with the expansion/contraction of the boarding bridges. The time delay between the opening/closing of the vehicle and station doors must be configurable and adjustable. ▪ The wireless signal transferred from the vehicle to the station must be via a secure communication protocol that will ensure that the station doors are only activated by valid requests. The Company will work closely with the Employer to provide an open standard door opening system that will be compatible with the third-party company providing the station door system. For this application, provisioning of wiring or any other hardware should be provided in buses by the Company.
5.6.4	Door safety and emergency operation	Doors shall not open until the vehicle comes to a stop. Doors shall have an interlock control with brake and accelerator to prevent movement of vehicle with doors in open position. The doors shall function even with the ignition off. Anti-pinch sensors shall be installed to retract the door automatically if any obstruction with a width of 25 mm or greater is caught between any point of the doorway. The anti-pinch system will prevent injury due to wrists, ankles, or belongings being caught in the doorway.

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5.6.5	Alignment indicators (For future provisioning)	Visual alignment indicators shall be utilized to properly align the vehicle both along the length of the stations as well as the distance away from the station platform. The stopping point for the vehicle along the length of the station platform shall be demarcated by two decaled lines on the side driver window. These lines will correspond to a chevron sign on the side of the station. For the alignment of the pathway towards the station, decaled lines on the front windscreen will be matched with a line in the roadway. The lines in the windscreen will assist the driver in aligning to the roadway marking. The decaled lines on the side window and the front windscreen will be made of a durable and visible material. The precise location of the markings on the side window and windscreen will be provided by the Employer. It is up to the discretion of the Company to install the requirements either locally or at the manufacturing site.
5.6.6	Closing Force	Closing door edge speed shall not exceed 30 cm per second, and opening door speed shall not exceed 50 cm per second. Power doors shall not slam closed under any circumstance, even if the door is obstructed during the closing cycle. If a door is obstructed during the closing cycle, the pressure exerted on the obstruction shall not increase once initial contact has been made. Doors shall be equipped with a sensitive edge or other obstruction sensing system such that if an obstruction is struck by a closing door edge, the doors will stop and/or reverse direction prior to imparting a 5-kilogram force on 7 square centimeters of that obstruction. Whether or not the obstruction sensing system is present or functional it shall be possible to withdraw a 3.8-centimeter diameter cylinder from between the center edges of a closed and locked door with an outward force not greater than 16 kilograms.
5.7	**Windows**	

5.7.1	Side and rear windows	Windows shall be provided along the sides of the vehicle as well as the rear of the vehicle. The side and rear window areas shall be as large as possible to give the seated and standing passengers an unobstructed exterior view. The window unit shall be a minimum of 980 mm in height. Sub-Supplier is encouraged to provide larger panoramic-styled windows. However last rear window can be smaller in size for any space constraint. Windows shall be of the bonded type. Windows shall not be mounted in rubber moulds. All glass shall be tinted to an approximate level of 70% to 80% light transmission (i.e. glass permits approximately 70% - 80% of light to enter). Side windows shall have the look of a seamless or continuous window when viewed from exterior of the vehicle. The exterior of the windows shall withstand damage and scratching from use of vehicle wash system. This would include, but not limited to soaps, spinning brushes, as well as hand brushes. A positive lock type emergency latch shall be furnished on each emergency window frame. Both sides of the vehicle shall have a window decal describing emergency window operation procedures. The driver's side windows shall be split, sliding windows. The sliding portion shall move freely without rocking or binding. Driver windows shall be glazed with tinted laminated safety glass. Glass shall be tinted at the top third (1/3), to meet safety standards.
5.7.2	Opening of windows	While the vehicles will be fitted with air conditioning, there will be the option of manually-opened vents to be used in case of air conditioning failure besides the roof vents. These windows shall incorporate an upper transom portion. The transom shall be between 25 and 35 percent of the total window area. The lower portion of the window shall be fixed. The transom portion shall be hinged along the lower edge and open inward. This should be visually merged as much as possible with the fixed windows around them. However, the window vents will normally be locked during periods of the year when air conditioning is to be utilized. The unlocking of the windows should be controllable by the driver via keys whereby driver can walk from the station and open them. They should not be unlocked by a passenger. The locking can be done manually at each vent by simply closing them. Moreover, three (3) set of keys should be provided for each bus.

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5.7.3	Windshield and windshield wipers	The windshield shall be designed for easy replacement and maintenance. Windshields shall be angled sufficiently to reduce glare from the interior vehicle lighting. A fully adjustable sun visor shall be installed for driver's use. The installation shall preclude vibration in normal street operation. The visor shall be a full see through, mesh style with a release cord that allows the visor to return to the normal position. Two electric-operated heavy duty windshield wipers shall be furnished. The wiper motors shall be variable speed having at least a high and low speed setting with an intermittent setting. The windshield wiper system shall include a "self-parking" feature, which means the wiper returns to its base position when the wiper is disengaged. A windshield washer shall also be provided. The largest wiper blade possible for windshield design shall be used.
5.8	**Exterior panels, roof gutter and bumpers**	
5.8.1	Exterior panels	Exterior panels shall be sufficiently stiff to prevent vibration, drumming or flexing while the vehicle is in service.
5.8.2	Roof gutter	Roof gutters shall be installed if body style does not stop water flow into or on windows, doors, and mirrors. The roof gutters will be installed over the side windows and doors, if necessary. When the vehicle is decelerated, the gutters shall not drain onto the windshield, or operator's side window, or into the door boarding area. Cross sections of the gutters shall be adequate for proper operation.
5.8.3	Bumpers	No part of the vehicle except Bumpers shall be damaged as a result of a ten (10) kph impact at the front or rear of the vehicle. The energy absorption system of the bumper areas shall not require service or maintenance in normal operation during service life of the vehicle.
5.8.4	License Plate provisions	Provisions shall be made to mount local standard size license plates on the front and rear of the vehicle. It is encouraged to arrange license plate dimensions which are standard as per industry practices. These provisions shall direct mount or recess the license plates so that they can be cleaned by automatic vehicle washing equipment without being caught by the brushes. License plates shall be mounted according to local rules and shall not allow a toehold or handhold for unauthorized riders.
5.9	**Wing mirrors**	Vehicles shall be equipped with two outside rear view mirrors, mounted on each front corner of the vehicle. The wing mirrors shall be motorized. The control switches shall be mounted on the driver's control console. The mirrors shall be fully adjustable to give the driver a full view of the required area.

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		In order to ensure that the wing mirrors will not collide with the stops infrastructure during normal operation, the distance from the outside edge of the right-side wing mirror to the outside edge of the vehicle body shall not exceed 150 mm. For the left-side wing mirror, the distance from the outside edge of the wing mirror to the vehicle body shall not exceed 200 mm. In order to ensure effective driver visibility, the wing mirrors shall have a minimum width of 170 mm and a minimum height of 250 mm.
5.10	**External access points**	
5.10.1	External access doors	Access doors shall be provided, where necessary, for the easy maintenance of equipment. The access doors shall be provided with positive hold open devices and corrosion resistant latches. Access openings shall be sized for easy performance of tasks within the compartment including tool operating space. Access doors shall be of rugged construction and shall maintain mechanical integrity and function under normal operations throughout the service life of the vehicle. They shall close flush with the body surface. When engine access door is open, it shall not obstruct the rear vehicle lights. Access to the engine compartment, transmission compartment, radiator compartment, and ITS control compartment doors shall be controlled by some form of key access ("T" key style is acceptable). There shall be an access door for emergency workers to gain entry to the "Battery Disconnect" and it shall be labelled as such. This access door shall not require tools to gain access.
5.10.2	Service Area Lighting	Lights shall be provided in the engine and all other compartments, where service may be required, to generally illuminate the area for night emergency repairs or adjustments. Sealed lamp assemblies shall be provided in the engine compartment and shall be controlled by a switch located near the rear start controls in the engine compartment. Necessary lights, located in other service compartments, shall be provided with switches on the light fixture or convenient to the light.
5.10.3	Roof escape hatch/air vents	At least one emergency roof escape hatch shall be provided in each vehicle. The hatch shall have a seal around the opening, and shall be opened by pulling the release handle. Instruction decals shall be placed on the underside of the hatch. The roof hatch may also act as a fresh air ventilator at times when the air conditioning is not in use.

Section 6: Interior	
6.1	**Colors, maps, and advertising**

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6.1.1	Color Scheme	The color of the wall panels shall contrast with that of the surface of the floor and this contrast is to be most clearly defined at the junction of the floor to the wall. The actual colors to be utilized will be determined by the Employer during the pre-production period. The color of the wall panels shall contrast with that of the surface of the floor and this contrast is to be most clearly defined at the junction of the floor to the wall. The actual colors to be utilized will be determined by the Employer during the pre-production period.
6.1.2	Panels and trim	The interior of the access doors shall blend in with the appearance of the vehicle interior. The interior side walls, ceiling trim panels, and sections between large side windows down to the bottom of the window openings shall consist of an aesthetically-attractive and durable material. The materials must be approved by the Employer during the pre-production period. The interior of the access doors shall blend in with the appearance of the vehicle interior. The interior side walls, ceiling trim panels, and sections between large side windows down to the bottom of the window openings shall consist of an aesthetically-attractive and durable material. The materials must be approved by the Employer during the pre-production period.
6.1.3	System map	To provide excellence in system legibility, system network maps will be placed on all vehicles. The system maps will be provided in a large size that will be visible to the passenger area to the extent possible. At least two locations should be provided inside the buses for a system map. The actual provision of the maps is the responsibility of the Employer.
6.1.5	Advertising	In order to optimize system revenues, some discrete advertising space will be permitted inside the vehicles. The possible spaces for the advertising include the space above the windows as well as on any partition panels not utilized for the system route map. The advertising spaces will be designed to include mechanisms to hold the advertising in place. The Sub-Supplier will note the proposed locations of the advertising in the submitted interior layout drawings of the vehicle.
6.2	**Grab-rails/stanchions/straps**	
6.2.1	Grab-rails and stanchions	Full grip stanchions and grab-rails shall be provided for the safety of the standing passengers and for ingress and egress. The stanchions and grab rails shall be properly supported and held in place according to industry standards. Ceiling grab-rails, one on each side of vehicle aisle way, shall be even with aisle edge of the seats.

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		back shall be a soft padded plastic material. All materials shall be durable and easily maintained and cleaned. The color of the seat will be selected by the Employer during the pre-production period. The color of the seating in the women-only section of the vehicle shall be different than the color of the seating in the men's section of the vehicle. Example images of the proposed options for the seat type and materials are required to be provided. The type, style, and color of the seating materials must be approved by the Employer during the pre-production period.
6.4.6	Hand-hold rail	All aisle passenger seats shall be equipped with a hand-hold rail at the top of the seat back-rest. A hand-hold rail at the sides is encouraged, since it is often useful for small children.
6.5	**Specials needs seating**	The vehicle shall include provisions for wheelchair-compatible open bays as well as priority seating areas for women only.
6.5.1	Wheelchair bays	Minimum one wheelchair bay shall be provided. Wheelchair bay shall be forward facing. Minimum of 1 wheelchair bay will be accommodated in the wheelchair bay area. Each wheelchair bay shall be a minimum of 1.3 m in length. The wheelchair bay will also accommodate flip-down seating that can be utilized when no wheelchair patron is using the space. The wheelchair bay is to be provided with approved independent passenger and wheelchair restraint systems including seat belts and stanchions as necessary. The equipment is to comply with ISO 10542. The wheelchair bay shall include a headrest backboard to minimize injury in case of an accident or sudden stop. The wheelchair bay shall be designated a priority area for wheelchair patrons as well as other disabled persons and customers with prams. The wheelchair bays shall have signage indicating this prioritization. A pictogram indicating this priority will also be placed adjacent to the exterior of the doorway nearest to the wheelchair bay.
6.5.2	Preferential seating area for women	The front section of the vehicle will be for women only in order to reduce incidences of harassment. These seats should be a different identifiable color than the seats in the men's section of the vehicle. Likewise, pictograms shall be placed on the walls of the front section of the vehicle to note that the area is only for women and disabled passengers.
6.6	**Driver's compartment**	
6.6.1	Driver's seat	The driver's seat shall include: headrest, high back, dual air lumbar, air operated side bolsters, and an automatic/manual fore and aft slide. The driver's seat shall be upholstered in all cloth fabric. The driver's seat will be equipped with a 3-point seat belt, and a

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		built-in maxi alarm indicating that the brake has not been applied when driver takes pressure off the seat.
6.6.2	Enclosed compartment	The driver's area shall be an enclosed compartment. Behind the driver shall be a partition wall, but the wall shall include a window to allow visibility into the passenger area. To the left-side of the driver shall be a clear upper wall and doorway to allow the driver to have full peripheral vision and to be able to communicate freely with the conductors. The doorway to the driver's compartment shall be lockable for security purposes.
6.6.3	Compartment ergonomics	The Company shall supply or cause to be supplied state of the art ergonomics engineering to the vehicle driver's environment to maximize driver comfort and ease of operation for extended periods of time. All switches and controls necessary for the operation of the vehicle, including door master, shall be conveniently located in the driver's area and shall provide for ease of operation.
6.6.4	Interior mirrors	In addition to the presence of cameras and displays, mirrors shall be provided for the driver to observe passengers throughout the vehicle without leaving his/her seat and without shoulder movement.
6.6.5	Signage	Signage shall be provided near the driver's compartment. This signage shall state that passengers shall not address the driver, except in emergency situations. The signage shall also state that the driver carries no cash and that any of abuse of the driver shall result in prosecution.
6.6.6	Components	The following are the various components to be found in the area of the driver's compartment: ▪ Basic toolbox fitted behind the driver ▪ Horn ▪ ITS components (described below) ▪ Driver's sun visor on both the right and left hand windscreen ▪ Fire extinguisher placed near the driver, approved to national standards ▪ Triangle kit for roadway incidents ▪ Lockable storage holder next to driver to place personal belongings ▪ Provision of space / holders for operating license certificate and valid operational permit on dashboard or driver side window.
6.7	**Floor**	
6.7.1	Floor base	The floor base shall be resistant to moisture and moisture related deterioration. The underframe shall have sufficient stiffeners to keep the flooring from excessive flexing under maximum loads.
6.7.2	Floor covering	The floor covering shall be both aesthetically pleasing as well as durable. The floor covering shall be capable of withstanding daily mopping / wet scrubbing. The floor covering shall be a heavy-duty non-slip

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		material with a minimum thickness of 2 mm. The walking area of the floor shall be level in each section. The color of the floor at the passenger doorways shall contrast with that elsewhere in the vehicle. In front of each doorway, the floor color will be a high-contrast yellow to indicate that passengers are not to block that area. Company shall provide samples of the floor material options being offered. The type and color of the floor covering must be approved by the Employer during the pre-production period.
6.7.3	Access doors in floor	Floor inspection trap doors shall have a quick-acting coupling system to facilitate the access and maintenance of chassis components. All holes in the floor material, for mounting bolts, seams, etc., shall be caulked and sealed before sanding. Access openings in the floor shall be avoided with the exception of access for the fuel tanks sending unit and driveshaft.
6.7.4	Wheel housing	To the extent, any exposed wheel housings are present in the interior space: ▪ The wheel housings shall be trimmed and sealed at its mating edges. ▪ The color of the wheel housing shall compliment vehicle interior. The color will be determined by the Employer during pre-production. ▪ The wheel housing shall be finished on the vehicle interior to withstand scuffing, wear and abuse from passenger feet.
6.8	**Partition walls**	Partition walls shall be installed just to the front of the second median doorway in order to help provide some protection between the women's and men's area of the vehicle. A partition wall shall also be installed to the rear of the wheelchair bay. The Sub-Supplier will also identify a location in the rear of the vehicle (i.e. behind the articulation unit) to place a partition wall that may be used for placement of a route map and/or advertising. A partition wall shall also be installed behind the driver; this barrier shall be transparent above 1,000 mm so that the driver has a clear view of the passenger area. Some of the partition walls will be fitted to accommodate a system map and/or advertising. Partitions shall incorporate hand-holds that assist seated passengers in arising or steadying themselves. Adequate clearance shall be provided for passenger's hand between panel and rear half of door, during complete opening and closing cycle. Material color and finish to be determined during the pre-production period.

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6.9	**Fire and safety equipment**	The Company shall furnish and install or cause to be furnished and installed a dry chemical extinguisher with hose assembly. The fire extinguishers shall be located in easily accessible locations. The interior of the vehicle shall be fitted with the required fire and safety decals. The placement of the fire equipment and the decals shall be approved by the Employer during the pre-production period.
6.10	**Interior insulation**	Aside from the general thermal and acoustic requirements for the body, any seat area over the engine shall be heavily insulated for both noise and heat protection with fiberglass blankets or approved equal.

Section 7: Mechanical		
7.1	**Engine / propulsion system**	
7.1.1	Propulsion system	The vehicle fleet shall be based on a regenerative diesel-electric series-parallel hybrid series/parallel system. Electric propulsion will be generated from regenerative braking system.
7.1.2	Propulsion System Service	The propulsion system shall be arranged so that accessibility for all routine maintenance is ensured. No special tools, other than dollies and hoists, shall be required to remove the propulsion system or any subsystems. However, the Employer shall recognize that properly rated test equipment and safe electrical work practices are essential when servicing high-voltage hybrid components. The exhaust system, air cleaner, air compressor, radiator, all engine accessories, and any other component requiring service or replacement shall be easily removable. The Company shall provide or cause to be provided all specialty tools and diagnostic equipment required for maintaining the propulsion system in accordance with the special tools list.
7.1.3	Primary Propulsion Unit and Traction Motor	The propulsion system may be configured in a variety of methods dependent upon type of drive, series and/or parallel. The definition of motor in the context of this specification assumes that the device can provide or consume energy as well as provide or retard mechanical motion.
7.1.4	Energy Storage and Controller	Design and performance data shall be provided or cause to be provided by the Company. Energy storage shall be of a commercial design capable of operating in the relevant transit environment. The primary charging of the energy storage system shall be accomplished by the on-board hybrid system controller and regenerative braking. Thermal management will be provided to ensure optimal life and performance of the Electrical Storage System (ESS) over the environmental operating range.
7.1.5	Hybrid System Controller (HSC)	The HSC regulates energy flow throughout hybrid system components in order to provide motive performance and accessory loads, as applicable,

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		while maintaining critical system parameters (e.g., voltages, currents, temperatures, etc.) within specified operating ranges. The controller shall monitor and process inputs and execute outputs as appropriate to control the operation of all propulsion system components.
7.1.6	Diesel engine position	The engine portion of the system shall be in the rear of the vehicle. Engines / propulsion systems will be separated from the passenger compartment by means of a sound, vapor and fire proof wall.
7.1.7	Charge air cooling	The charge air cooling system, also referred to as after-coolers or inter-coolers, shall provide maximum air intake temperature reduction with minimal pressure loss. The charge air radiator shall be sized and positioned to meet engine specifications and requirements. The charge air radiator shall not be stacked ahead or behind the engine radiator and shall be positioned as close to the engine as possible unless integrated with the radiator. Air ducting and fittings shall be protected against heat sources and shall be configured to minimize restrictions and maintain sealing integrity.
7.1.8	Hybrid Drive System Cooling	The engine cooling system should provide coolant bypass flow to the transmission cooling system with the engine thermostats closed. Unless otherwise noted, the transmission cooler is to be the first component to see cold water from the radiator outlet. In addition, all return water piping, aside from the thermostat bypass line, is to be plumbed in after the transmission cooler.
7.1.9	Design Life	The propulsion system shall have a design life of at least 1,200,000 kilometers, subject to proper maintenance practices.
7.1.10	Power	The propulsion system shall be sized to provide enough power to enable the vehicle to meet the defined acceleration, top speed and gradeability requirements, and operate all propulsion-driven accessories using actual road test results and computerized vehicle performance data. The propulsion system shall provide the greater of 15 HP per ton gross vehicle mass or that required to achieve and maintain 50 km/hr on a 4% up grade and 30 km/hr on an upgrade of 8% with a full vehicle load (GVWR). Values are assumed to be sustained. The Company shall provide data if there is a variance between peak performance and sustained vehicle performance.
7.1.11	Maximum speed	The vehicle shall be capable of reaching a top speed of 90 km/hr on a straight, level road at GVWR with all accessories operating. The vehicle shall be capable of safely maintaining the vehicle speed according to the recommendations by the tire manufacturer. For actual operational use the vehicle shall be set to limit maximum vehicle speed to 80 km/hr.

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7.2	**Fuel / energy system**	
7.2.1	Fuel and emission standard	The diesel-fuel portion of the hybrid propulsion system shall conform to a Euro 3 emission and fuel standard. Currently, only diesel fuel meeting a EURO 2 emission standard is available in Pakistan. EURO 2 fuel will thus be utilized in the vehicles. However, it is recognized that EURO 2 compatible engines are generally being phased out of production. In addition, the service would benefit from the potential future option of a cleaner emission standard. Thus, the vehicle is to be designed with a propulsion system capable of meeting a EURO 3 emission standard (while recognizing EURO 2 fuel will be employed in the system).
7.2.2	Fuel tank	For the diesel-fueled option, the fuel tank(s) shall be securely mounted to the vehicle to prevent movement during vehicle maneuvers, but shall be easily removed for cleaning or replacement. The tank shall have an inspection plate or removable filler neck to enhance cleaning and inspection. The tank shall be baffled internally to, prevent fuel sloshing regardless of fuel level. The diesel fuel tank shall be sized to allow at least 300 kilometers of operation prior to re-fueling.
7.2.3	Filler provision	The tank filler pipe shall be so designed as to prevent back splash when the tank reaches full, as the fuel fill nozzle shuts off. It is preferred that the fuel filler be located on the left side of the vehicle.
7.2.4	Regenerative braking system	The vehicle shall be equipped with a regenerative braking system to capture the kinetic energy from vehicle deceleration. The energy from the regenerative braking system will be stored in the vehicle's battery bank.
7.2.5	Battery size and range capacity	The battery portion of the regenerative diesel-electric hybrid system shall hold a charge capacity capable of delivering a minimum service range of 50 kilometers. The battery size is estimated at minimum 60 kWh to deliver the target electric-only range.
7.2.6	Electric motor size	The electric motor that will provide the power for electric portion of the vehicle's propulsion system shall be at least 100 kW in size.
7.2.7	Battery pack replacement	As per the warranty obligations, the Company shall replace the battery packs on any vehicle once the capacity falls below 70% of its original capacity at full charge.
7.3	**Environmental and safety standards**	
7.3.1	Emission standards	Vehicles shall conform to the national air-pollution control standards and all other local air-pollution requirements as established for the year of vehicle manufacture. Vehicles shall meet a minimum emission standard of Euro 3.
7.3.2	Noise standards	In no mode of operation shall the vehicle generate external noise levels greater than 85 dB, measured 15 meters from the centerline of the lane in which the vehicle is travelling.

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		The interior noise at any location greater than 300 mm from an interior window or wall and 1.2 m from the floor shall not exceed 80 dB during any vehicle operating condition. In addition, the Company shall comply with the exterior noise requirements defined in Applicable Laws identified by the Employer.
7.3.3	Safety standards	The vehicle must meet all safety performance standards set for public transport vehicles under the Applicable Standards. The vehicle shall be designed and manufactured in accordance with all applicable fire safety and smoke emission regulations. These provisions shall include the use of fire-retardant/low-smoke materials, fire detection systems, firewalls, and facilitation of passenger evacuation. All materials used in the construction of the Passenger Compartment of the vehicle shall be in accordance with the Recommended Fire Safety Practices defined in FTA Docket 90, dated October 20, 1993 or later or another internationally recognized standard approved by the Employer. Materials entirely enclosed from the passenger compartment, such as insulation within the sidewalls, need not comply. In addition, smaller components and items, such as seat grabrails, switch knobs and small light lenses, shall be exempt from this requirement. Fire sensing and suppression systems shall be provided. The requirements for passenger evacuation provisions related to doors, windows, and escape hatches are defined in Section 5 - Body. Other accident and structural safety standards and tests are either in the Attachment or described and determined throughout this document.
7.4	**Transmission**	Vehicles shall be equipped with electronically controlled automatic gearboxes that are matched to the engine and other drive train components to ensure the required performance characteristics. The system gearbox shall provide smooth power transfer throughout the power range and shall not transfer any power when the gear selector is in neutral.
7.5	**Drive shaft**	The drive shaft shall be suited to the mass and performance requirements of the vehicles and shall have lubrication fittings provided for the universal and slip joints
7.6	**Axles**	The vehicles shall have two axles. The vehicle should sustain a maximum axle load on the front axle of 6,000 Kgs. The vehicle should be capable of sustaining a maximum axle load on the rear axles of 10,000 Kgs.

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7.7	**Suspension system**	All vehicles shall have air suspension with electronic self-levelling control. The suspension system shall be self-adjusting with respect to any load imbalances that may occur. The basic suspension system shall last the life of the vehicle without major overhaul or replacement. All friction parts or suspension shall be equipped with replaceable bushings and inserts. All axles should be properly aligned so the vehicle tracks accurately within its size and geometry.
7.8	**Steering**	All vehicles shall be fitted with power steering to reduce steering effort. The system can either be electrically assisted only or an electro-hydraulic system with an electric pump. Steering columns shall be adjustable to accommodate driver needs. A power steering fluid reservoir that is easily accessible for checking and filling fluid level without removing any equipment shall be provided.
7.9	**Brakes**	Vehicles are to have pneumatic anti-lock brake systems designed to ensure safe braking under normal and emergency conditions and appropriate for the operating environment. The braking system shall be balanced such that braking effort is appropriately distributed between all wheels to ensure maximum tire kilometers and equal rate of wear in front and rear break blocks. The braking system shall meet all current national and local safety standards. An emergency brake release shall also be provided to release the brakes in the event of automatic emergency brake application. The driver shall be able to manually depress and hold down the emergency brake release valve to release the brakes and maneuver the vehicle to safety. Once the driver releases the emergency brake release valve, the brakes shall engage to hold the vehicle in place. Air to the emergency brake release system shall be provided by a dedicated emergency air tank supplied by the electric pump system.
7.10	**Tires and wheels**	
7.10.1	Tires	The tires shall be capable of operational speeds up to 80 km/h with the specified axle loads. The load on any tire at full GVM shall not exceed required tire rating. The tires shall have a radial ply construction. Tires shall be interchangeable between axles on the vehicle.
7.10.2	Tire to body distance	The effectiveness of the vehicle-to-platform alignment is also affected by the distance from the outer edge of the tire sidewall to the outer edge of the vehicle body. Quite often the tire sidewalls are inset to the inside of the body.

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		The maximum inset distance from the outside edge of the tire sidewall to the outside edge of the vehicle body shall be 125 mm for the front axle and 80 mm for the middle and rear axles.
7.10.3	Wheel characteristics	All wheels on the vehicle shall be of the same size and type interchangeable between front and rear. Each shall be powder coated a color determined by the Employer during the pre- production period. The manufacturer shall furnish one full set of wheels, with one spare for every vehicle provided.
7.10.4	Splash guards/splash aprons	Splashguards / aprons made of composition or rubberized material shall be installed on the body around the periphery of the wheel. The design of the splashguards / aprons shall preclude the accumulation of dirt.
7.11	**Turning radius and tracking**	The turning radius of the vehicles is a critical parameter in determining the vehicle's ability to properly dock at stops. The minimum turning radius of the vehicles is defined through the tracking movement of the front inner and outer wheels. The maximum turning radius for the outer wheels is specified as 12.0 meters.
7.12	**Air conditioning system**	The air conditioning system must be capable of maintaining an average interior temperature of between 23°C and 25°C when the ambient temperature is 45°C. The air conditioning system shall be capable of reaching the targeted interior temperature of between 23°C and 25°C within 30 minutes of vehicle operation when the ambient temperature is 45°C. The system shall continue to provide a cooling function until a cut-off temperature of 50°C. Compliance to these temperature targets will be measured at two points in the vehicle. The first location will be the second passenger row behind the driver. The second location will be the second to last passenger row at the back of the vehicle. All measurements will be taken at the height of the seat headrest. The design should be such that it minimizes electricity usage. The system's weight shall also be minimized in order to reduce impacts on axle loads and to reduce impacts on vehicle operating speeds. The system shall be designed to function for the life of the vehicle (12 years) when maintained properly. The air conditioning system shall meet these performance requirements using a specified and approved by Employer refrigerant.
7.12.1	Air Flow – Passenger Area	The cooling mode of the interior climate control system shall introduce air into the vehicle at or near the ceiling height at a minimum rate of 0.7 cubic meters per passenger based on the standard configuration vehicle carrying a number of passengers equal to 1.5 times of the seated load.

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		Airflow shall be evenly distributed throughout the vehicle, with air velocity not exceeding 30 meters per minute on any passenger. The ventilating mode shall provide air at a minimum flow rate of 0.85 cubic meters per passenger. The climate control blower motors and fans shall be designed such that their operation complies with the interior noise level requirements.
7.12.2	Air Flow - Driver's Area	The vehicle interior climate control system shall deliver at least 2.8 cubic meters of air to the operator's area when operating in the ventilating and cooling modes. Adjustable nozzles shall permit variable distribution or shutdown of the airflow. The windshield defroster unit shall meet best Practice Windshield Defrosting Systems Performance Requirements. The defroster or interior climate control system shall maintain visibility through the operator's side window. A separate ventilation, and defroster system for the operator's area shall be provided and shall be controlled by the bus operator.
7.12.3	Air Filtration	Air shall be filtered before discharge into the passenger compartment. The filter shall meet the US American National Standards Institute / American Society of Heating and Air conditioning Engineers (ANSI/ASHRAE 52.1) requirement for 5 percent or better atmospheric dust spot efficiency, 50 percent weight arrestance, and a minimum dust holding capacity of 120 gram per 28 cm cell. More efficient air filtration may be provided to maintain efficient heater and/or evaporator operation. Air filters shall be easily removable for service. Air filters shall be cleanable.
7.12.4	Roof Ventilators	Two roof ventilators shall be provided in the roof of the vehicle, one approximately over or just forward of the front axle, a second approximately in the rear section. The ventilators shall be easily opened and closed manually by a 1.5-meter-high passenger. If roof ventilator(s) cannot be reached by this passenger, then a tool shall be provided to allow this. When open with the vehicle in motion, these ventilators shall provide fresh air inside the vehicle. Ventilator shall cover an opening area no less than 0.28 square meters and shall be capable of being positioned as a scoop with either the leading or trailing edge open no less than 10cm, or with all four edges raised simultaneously to a height of no less than 9cm. An escape hatch shall be incorporated into the roof ventilator. Roof ventilator(s) shall be sealed to prevent entry of water when closed.
7.12.5	Maintainability	Manually controlled shutoff valves in the refrigerant lines shall allow isolation of the compressor and dehydrator filter for service. To the extent practicable, self-sealing couplings utilizing O-ring seals shall be used to break and seal the refrigerant lines during removal of major components, such as

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		the refrigerant compressor. Shut-off valves may be provided in lieu of self-sealing couplings. The condenser shall be located to efficiently transfer heat to the atmosphere and shall not ingest air warmed above the ambient temperature by the vehicle mechanical equipment, or to discharge air into any other system of the vehicle. The location of the condenser shall preclude its obstruction by wheel splash, road dirt or debris. HVAC components located within 15 centimeters of floor level shall be constructed to resist damage and corrosion. Must have high and low refrigerant pressure electronic gauges to be in the return air area.
7.12.6	Air Flow System of the Bus	The air-system of the bus shall be specially designed with option available to the driver with push button to collect all breathe air from the roof and exhaust it without recycling during passenger trip. Meanwhile fresh dust free / filtered air of equal proportion is to be pumped in from the driver's side of the bus for normal breathing of passengers.
7.12.7	Self Disinfectant System	Each bus shall be equipped with a self-disinfectant system with a liquid tank of sufficient capacity and pressure pump as option available to a driver with push button to spray the whole bus at the end of each trip. The system shall generate a mist of a suitable cholorox type non-flammable self evaporating disinfectant or any other liquid disinfectant in compliance with available international standards to fulfill the purpose in the entire bus prior to start of a trip. As a safeguard the pump system shall remain disabled while the bus speed is non-zero i.e. in a moving bus. The mist shall be used to disinfect the bus in the direction from roof to floor and its discharge points shall be placed proportionally to cover the entire bus from inside.
7.12.8	Air Curtains	Air curtains on all access doors to avoid loss / gain of heat and / or cool air when doors are frequently opened for boarding & alighting of passengers with minimum air flow of 1000 ± 50 m3/hr.
7.13	**Heating System**	The Proper Heating System will be provided in the buses for winter season.
7.14	**Maintenance and servicing**	The engine / propulsion system and battery packs shall be arranged so that accessibility for all routine maintenance is assured. No special tools, other than dollies and hoists shall be required to remove the engibe/accessories. The power plant shall be removable as one complete unit. The muffler, exhaust system, air cleaner, air compressor, starter, alternator, radiator, all accessories and any other component requiring service or replacement shall be easily removable and independent of the engine and transmission removal.
7.15	**Tools, software, diagnostic equipment, and manuals**	

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7.15.1	Tools	The Company shall deliver or cause to be delivered to the Employer the following tools: ▪ One complete set (for 8.5-meter vehicle type) of the dollies and cradles necessary for the handling of engines, transmissions and other heavy components requiring specialist handling equipment. ▪ One complete set per depot (for 8.5-meter vehicle type) of all tools required for the maintenance of the principal vehicle components.
7.15.2	Diagnostic equipment and software	The Company shall provide or cause to be provided 1 set per depot of diagnostic equipment and 1 set per depot of software that permits status evaluation of the critical vehicle components. This equipment and software shall indicate the status of the specified equipment and shall be accompanied by clear information on any required remedial actions. The diagnostic equipment shall provide information on the following vehicle components: ▪ Engine unit ▪ Battery packs ▪ Gearbox ▪ System electronics. ▪ Air Suspension system ▪ Wheel and Axle Alignment
7.15.3	Guidance and instruction manuals	The Company shall provide or cause to be provided a complete set of vehicle guidance and instructional manuals. These manuals shall as a minimum cover the following topics: ▪ Description of all parts and components, including instructions for assembly and disassembly ▪ Description of maintenance and diagnostic procedures ▪ Troubleshooting recommendations and procedures ▪ contact details for emergencies, maintenance support, and parts procurement The manuals shall be provided in correct and proper English. At least four (4) color printed copies shall be provided. At least three (3) digital copies on three (3) USBs shall also be provided.
7.16	**Performance documentation**	The Company shall furnish or cause to be furnished the following performance graphs as part of the bid documentation: ▪ Engine Speed vs. Road Speed ▪ Horsepower vs. Engine Speed ▪ Specific Fuel Consumption Chart (for diesel-fuel operation) ▪ Electricity Consumption Chart (for electric operation) ▪ Vehicle Speed vs. Grade (both loaded and unloaded)

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Section 8: Electrical		
8.1	**Internal lighting**	The light source shall be located to minimize windshield glare, with distribution of the light focused primarily on the passengers' reading plane while casting enough light onto the advertising display. The lighting system may be designed to form part of or the entire air distribution duct. The lens material shall be translucent polycarbonate. Lenses shall be designed to effectively "mask" the light source. Lenses shall be sealed to inhibit incursion of dust and insects yet be easily removable for service. Access panels shall be provided to allow servicing of components located behind light panels. If necessary, the entire light fixture shall be hinged. When the driver master switch is in the "run" or "night/run" mode, the first light module on each side of the vehicle shall automatically close or dim when the front door is in the closed position and illuminate when the door is opened. When in "Off" or "On" all lights shall be also on or off.
8.1.1	Passenger area	Energy-efficient lighting such as LED shall be installed in the cover area on both sides and along the total length of the vehicle and shall not occupied on the minimum interior headroom. The lenses shall be made of polycarbonate material and be sealed to prevent the entrance of dust and insects but shall be easily opened for cleaning and service of ballast and lamp.
8.1.2	Driver's compartment	A driver's compartment lamp, with a full-range dimmer, shall be mounted to illuminate the entire driver's area.
8.1.3	Interior door lighting	All door threshold areas shall be adequately illuminated with Light-Emitting Diode (LED) type lights activated only when the door is open. The lights shall be shielded to prevent light from directly shining into passenger or driver's eyes. Light fixtures shall be totally enclosed, splash proof, designed to provide ease of cleaning as well as lamp and housing removal and shall not be easily removable by passengers.
8.2	**Exterior lighting**	All exterior lights shall be designed to prevent entry and accumulation of moisture or dust. Lamps, lenses and fixtures shall be interchangeable to the extent practicable. Two hazard lamps at the rear of the vehicle shall be visible from behind when the engine service doors are opened. Light lenses shall be designed and located to prevent damage when running the vehicle through an automatic vehicle washer. Commercially available LED-type lamps shall be utilized at all exterior lamp locations. LED lamps shall be potted type and designed to last the life of the vehicle.
8.2.1	Headlamps	The headlamps shall utilize halogen/LED technology. The headlamps shall have a sealed beam unit. They

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		should be designed for ease of replacement. Headlamps shall incorporate a daytime running light feature.
8.2.2	Exterior door lighting	An exterior white LED light shall be provided at each door to adequately illuminate the outside area when the doors open. These lamps shall illuminate the street surface to a level of no less than 11 lux for a distance of 90 cm outward from the outboard edge of the door threshold.
8.2.3	Indicator lights, reversing lights, marker lights and reflectors	The indicator lights, reversing lights, marker lights, and reflectors shall have the following characteristics: ▪ LED lights shall be preferred where appropriate. ▪ Direction indicator lights shall be visible from front, rear and sides of the vehicle, with additional side units fitted if necessary. ▪ The vehicle shall be fitted with reversing lights, which shall also engage an audible reversing signal, clearly audible in the vicinity of the vehicle with the engine running. The reversing signal shall be audible buzzer or human voice along with audible buzzer can also be provided. Marker lights shall be installed, one on each upper corner of the body. ▪ Reflectors at the front, rear and on the each side of the vehicle shall be provided. Reflectors shall be installed on both sides of the vehicle.
8.3	**Battery and battery compartment**	
8.3.1	Battery	Battery and starter cable shall be properly bracketed, sized and fastened to carry the maximum loads that may be encountered. Each battery shall have a purchase date no more than one year from the date of release for shipment to the Employer.
8.3.2	Master battery switch	A master battery switch shall be provided near the batteries in the battery compartment, mounted to prevent corrosion, for complete disconnection of the electrical system. The master switch shall be capable of carrying and interrupting the total circuit load.
8.3.3	Battery compartment	The battery compartment shall prevent accumulation of debris on top of the batteries and shall be vented and self-draining. It shall be accessible only from the outside of the vehicle. All components within the battery compartment, and the compartment itself, shall be protected from damage or corrosion from the electrolyte. The inside surface of the battery compartment's access doors shall be electrically insulated, as required, to prevent the battery terminals from shorting on the door if the door is damaged in an accident or if a battery comes loose. The battery compartment temperature should not exceed manufacturers specification. The batteries shall be securely mounted on a stainless steel or equivalent tray that can accommodate the size and weight of the batteries. The battery tray, if

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		applicable, shall pull out easily and properly support the batteries while they are being serviced. The tray shall allow each battery cell to be easily serviced. A locking device shall retain the battery tray to the stowed position. If not located in the engine compartment, the same fire-resistant properties must apply to the battery compartment. No sparking devices should be located within the battery box.
8.4	**Wiring and cabling**	The wiring and cabling on the vehicle shall be color-coded for ease of repair and maintenance as well as safety.
8.5	**Stop request system**	The vehicle shall be fitted with a stop request system to allow passengers to request for the vehicles to stop at a certain stop/ station. Stop-request buttons shall be provided on the hand-hold bars on both sides of the vehicles. The placement of the stop-request buttons shall be such that no passenger is more than 1.2 meters away from a button. An indicator light showing the deployment of the stop request will be visible both in the passenger area and in the driver's compartment. The deployment of the stop request button will also be accompanied by a chime noise.

Section 9: Intelligent Transportation System (ITS)		
9.1	**Overview of ITS system**	The ITS equipment will consist of components that will be procured and installed by the Company. It includes: ▪ Automatic Vehicle Location (AVL) system ▪ Vehicle performance monitoring ▪ Fare Validation Equipment ▪ Passenger Door Count System ▪ Vehicle weight ▪ Digital Video Recorder (DVR) ▪ Vehicle WiFi system ▪ UHF/VHF/Wifi Communication System ▪ External variable messaging display ▪ Internal variable messaging display ▪ Internal infotainment display ▪ Audio system ▪ Door opening / door synchronization unit ▪ Driver display unit and on-board CCTV cameras. ▪ Driver panic alarm ▪ USB ports ▪ Traffic signal priority equipment (space provision for future addition only).
9.2	**Vehicle performance monitoring**	Vehicle performance monitoring is an essential element for effective fleet management and driver control. The Company will monitor and record the most pertinent performance statistics of the major mechanical and electrical components.

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		It is essential that all the vehicles are equipped with performance monitoring that will provide information of, at least, the following: ▪ Speed (wheel based and Tachometer based) ▪ Fuel used and fuel levels ▪ Engine speed (revolutions) and engine hours ▪ Vehicle distance ▪ Tachograph performance ▪ Handling information ▪ Engine coolant temperature ▪ Ambient air temperature ▪ Status of doors ▪ Time/date ▪ Brake pressures ▪ Parking brake status ▪ Gears and alternator status ▪ Direction indicators ▪ Vehicle weight. Data outputs from the monitoring equipment shall be recorded onto the Vehicle Logic Unit (VLU) for later compilation and analysis. The Company shall confirm or cause to be confirmed the required interfaces and applicable standards during the final design approval process. The monitoring system must comply with an open interface standard for information exchange typically used for Fleet Management Systems (FMS). For these purposes the system must comply with Bus-FMS-Standards (www.bus-fms-standard.com). The Company shall provide or cause to be provided a detailed interface specification for this interface. The monitoring system shall be able to interface with the AVL unit.
9.3	**Vehicle weight**	The Company shall measure and record or cause to be measured and recorded the vehicle weight at different points of time. The data recorded will include the total weight of the vehicle. Preferably, this data will also include the distribution of the weight, and in particular, will include measurement of the axle loads. There will be at least two general uses for the data collected. First, this data shall be correlated to GPS position to estimate the number of passengers on board the vehicle at different segments of the route. The weight values shall thus be used to estimate the number of passengers boarding and alighting at each stop. Second, the axle load data will help ensure compliance to the legal load-carrying limits of the vehicle. Data from the vehicle weight device shall be

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		recorded onto the Vehicle Logic Unit (VLU) and made available through the Bus-FMS interface.
9.4	**Vehicle Logit Unit (VLU)**	The VLU is the core computer server for most of the data and ITS functions on-board the vehicle. The VLU shall be placed in a location that allows effective connectivity to the various ITS components. The location shall also ensure that the VLU is physically well-protected. The VLU must be compatible to function with all other equipment installed. The Company shall provide or cause to be provided a description of the technical specifications (hardware, interfaces, and operating system) of the VLU and interface specifications allowing the integration of the unit with: ▪ Vehicle performance monitoring ▪ Communications unit ▪ GPS positioning data ▪ Digital Video Recorder ▪ External variable messaging display ▪ Internal variable messaging display ▪ Internal infotainment display ▪ Audio system ▪ Panic alarm.
9.5	**Communications Unit**	The Communications Unit will control the flow of communications and information between the vehicle and the control center. This includes both real-time data exchange as well as stored information for later downloads at the depots. The communication system will also permit verbal communications between the driver and the control center. The verbal communications system will be designed so that the driver may communicate hands-free of the device, but still capable of hearing vehicle cabin sound. The Communications Unit is comprised of a router and all antennae required for mobile (GSM/GPRS/LTE/3G/4G) connectivity, WiFi connectivity, and GPS positioning. A separate cable between the GPS antenna and the VLU shall be included. The Communications Unit will provide connectivity through 3G and 4G mobile networks. The Communications Unit will provide at least two slots for different SIM cards, and thus enabling the option of multiple simultaneous 3G/4G connections. Due to concerns regarding the reliability of the existing 3G and 4G mobile networks, the provision of communications via UHF/VHF radio bandwidths should also be provided by the Company. The Communication Unit may also provide the passenger WiFi system. Alternatively, the passenger WiFi could also be provided through a separate receiver and router (see 9.8 below).

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9.6	**Digital Video Recorder (DVR)**	All CCTV footage shall be recorded onboard by the Digital Video Recorder (DVR). The DVR shall be connected to the VLU for management purposes. Video footage on the DVR will be downloadable at the depot if required. DVR must have capability to store recording for seven days.
9.7	**Vehicle Wi-Fi**	The vehicle should have the provision to provide free Wi-Fi to passengers. The Company will procure and install the vehicle WiFi system. The Wi-Fi equipment will include a 4G receiver and router. The minimum download speed for the Wi-Fi system within the vehicle shall be at least 3.0 megabits per second (Mbps). The Company will be responsible for fitting and installing the WiFi receiver and router into the vehicle. The fitting of the equipment will be provided in a manner to ensure WiFi connectivity in all passenger sections of the vehicle. The Company will provide all necessary wiring and cabling for the system. The passenger WiFi may also be provided by a receiver and router integrated with the vehicle Communication Unit (see 9.5 above).
9.8	**External variable messaging display**	An external variable messaging display shall be provided on the top front of the vehicle. The external variable messaging display will indicate three possible types of information: 1.) Route destination; 2.) Name/Number of route; and 3.) Emergency messages. The external display shall utilize high brightness, wide viewing angle, amber LED technology. LED brightness shall be controlled by photocells installed as part of the sign. The controller shall communicate with the on-vehicle VLU. It shall also be possible to override messages directly from the control center under emergency conditions. The display shall be capable of showing upper and lower case characters with proportional fonts. The display shall be capable of showing double stroke width (bold) fonts. The front face of the display shall be designed to minimize glare. The display shall have the functionality to display messages in the following modes, set through configuration data: ▪ A single, non-scrolling or changing message ▪ A right to left scrolling message ▪ An alternating (between two states) message.

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		The LEDs shall have a minimum service life of 80,000 hours in their installed configuration. The system shall be designed for continuous operation without the need to manually "reboot" computers or devices. Visible messages shall begin playing within one (1) second of being triggered. External variable message sign shall be capable of displaying the message in Urdu and English.
9.9	**Internal variable messaging display**	Two internal variable messaging displays shall be provided, one for the front portion and one for the rear portion of the vehicle. The displays will provide the following types of information: ▪ Name of next stop ▪ Route name and route map ▪ Route destination ▪ Time. The onboard displays shall utilize high brightness, wide viewing angle, liquid crystal display (LCD) technology. The display will be readable for a distance of up to 8 meters. Messages on the displays shall be legible during any time of day and from any designated passenger position on the bus. The proposed location of the displays will be noted in the tenderer's vehicle layout drawing. During the pre-production stage, the Employer will specify the font type, color of the background, color of the lettering, and the use of any branding on the displays. The displays will interface with and be controlled by a Vehicle Logic Unit. Internal variable message sign shall be capable of displaying the message in Urdu and English.
9.10	**Internal infotainment display**	Minimum Two (2) infotainment displays shall be provided inside the vehicle. The infotainment displays will show full color video entertainment, news, public service announcements, and advertisements. The displays will be placed to be viewable for most passengers. The displays shall utilize high brightness, wide viewing angle, LCD technology. The display resolution shall be at least 1280 x 720. The displays will be enclosed in a tamperproof casing with toughened glass. The surface of the displays shall be coated with an anti-glare layer to enable viewing during any time of the day. Content for the infotainment displays may be stored on its own such that seamless video streaming is ensured at all times. Standard video signal input ports will be provided.

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9.11	**Audio system**	The audio system shall be capable of both digital audio messages programmed into the Vehicle Logical Unit (VLU) as well as public address messages from the driver. The audio system will be programmable in relation to the vehicle position in order to automatically deliver specific stop information. Upon arriving at a stop, the digitally-recorded message will announce the stop/station name as well as the name of possible transfer routes. A digital announcement will also be made noting that the doors are opening. Upon departing from a stop, a digitally-recorded message will note the doors are closing. The digital announcement will then note the route name, final destination, and the next stop. Messages from the driver on the public address system will only occur to announce special messages or situations, such as reasons for delays or emergency instructions. The digital recording of the messages will be the responsibility of the Employer. The volume of the announcements shall be adjustable to a standard level through configuration data. The system shall include an automatic gain control to automatically and independently adjust interior and exterior volumes depending on interior and exterior ambient noise levels. The audio system will be controlled by the VLU and the input ports must therefore be able to interface with the VLU.
9.12	**Door opening and synchronization unit**	The opening and closing of the vehicle's doors (both sides) shall be synchronized with the opening and closing of the station doors (for probable future use). A single switch/button on the driver console may actuate vehicle doors and station doors simultaneously.
9.13	**Driver displays and on-board CCTV cameras**	Closed-circuit television (CCTV) cameras shall be provided for vehicle surveillance to ensure passenger security and vehicle safety. The vehicle shall be fitted with at least four (4) CCTV cameras. One camera will cover the front curb-side door and the driver compartment. One camera will cover the front passenger area and the median-side doorways. One camera will cover the rear passenger area. One camera will face behind the vehicle, and thus will assist the driver when reversing. Output from the cameras will be shown through a visual display on or near the dashboard. The driver shall have a visual digital display of the area behind the vehicle whenever the vehicle is in reverse gear. The video footage from these cameras shall also be stored on-board on the digital video recorder (DVR). The Company will provide or cause to be provided

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		all cabling and connectivity between the cameras and the DVR. In normal conditions, the video footage will be downloaded when the vehicle enters the depot. The Company shall ensure that the system is designed in such a way so the data can be readily downloaded after the vehicle enters the depot. In emergency situations, the system shall allow streaming of onboard footage to the control center. The video from the cameras will also be connected to the Vehicle Wifi Mesh Network for relay to Control Centre in real time. All cameras will be integrated into the interior layout of the vehicle in a visually appealing manner. The precise location of the cameras will be determined in the pre-production phase with approval from the Employer. Both the cameras and the dashboard displays should ideally be highly visible to the passengers to give assurances that their security is being surveilled. The CCTV cameras shall be connected to the IP network.
9.14	**Driver panic alarm**	The panic alarm will be utilized in circumstances in which the driver is not able to utilize the normal communications system. The panic alarm shall be located discretely in the driver's compartment. The location should be such that it is known to the driver but not clearly evident to passengers. The Company shall provide or cause to be provided the button and the wiring required to connect it to the VLU.
9.15	**USB ports for passenger devices**	The provision of USB ports in the passenger seating area allows customers to charge their personal devices while travelling on public transport. This service helps further encourage ridership. The preferable configuration would be a port provided behind each seat or at the vehicle interior sidewall for seats without another seat directly in front.
9.16	**Traffic signal priority equipment (future option)**	The Company will ensure that space is available inside the vehicle for the deployment of traffic signal equipment. This deployment would likely involve the placement of a transducer device, which would be fitted onto the vehicle and used to activate the traffic signal equipment at a particular intersection.
9.17	**Automatic Vehicle Location (AVL) system**	All vehicles in the system will be tracked by an Automated Vehicle Location (AVL) system utilizing Global Positioning System (GPS) technology. Data from this system will form the basis of compensation to the Company, and therefore, this represents a critical data collection feature for the overall operation of the system.

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		The AVL system also provides instructions to the drivers to maintain the correct headway between vehicles. The AVL system will provide real-time, automatic information to drivers on the correct speed in order to maintain the headway. The system will clearly display on the driver console the target speed in real-time to maintain the headway. The AVL system thus encompasses all hardware and software components to achieve real-time positioning control of the vehicle. The AVL unit will be fitted into the driver console in an ergonomic manner. The AVL unit will also be integrated with the Vehicle Logic Unit (VLU), allowing it to: ▪ Relay vehicle performance data to the control centre ▪ Receive GPS positioning data ▪ Relay video to the control centre ▪ Control the content on all messaging and infotainment displays ▪ Feed the audio system with audio ▪ Relay panic messages to the control centre. The AVL system of the entire fleet will be monitored from the operational control center of the service. The AVL and GPS system shall be based on an open software standard.
9.18	**UHF/VHF/Wifi Mesh system**	Due to concerns over the reliability of mobile telephone networks, the vehicles will also be fitted with a communications system based on UHF/VHF/Wifi Mesh radio bandwidth technology.

Section 10: Bus Prototype Testing		
10.1	**Overview of Bus Prototype Test**	As explained in the Schedule of Delivery, Prototype Buses will be produced after the approval of detailed design. Certain tests will be conducted with this Prototype bus in order to ascertain the performance of bus. A minimum list of these tests are given in the section below, however the Company can proposed any additional tests deemed necessary. Also the Employer can ask for a few additional tests while finalizing these Prototype Testing.
10.2	**Bus Basic Compliance Tests**	The objective of this test is to go through the initial screening process to make sure that the bus complies with all the basic requirements
10.3	**Bus Physical Inspection**	The objective of this test is to carry out of physical inspection of the bus both from external and internal sides to assess the overall condition of the bus
10.4	**Safety Test – Double Lane Change (Obstacle Avoidance Test)**	The objective of this test is to determine handling and stability of the bus by measuring speed through a double lane change test.
10.5	**Performance Tests**	
10.5.1	Acceleration, Grade ability and Top Speed Test	The objective of this test is to determine the acceleration, gradeability, and top speed capabilities of the bus. Best is to have instrumentation set to read acceleration directly and to trace a speed curve. Gradeability can then be calculated.

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10.5.2	Bus Braking Performance Test	The objective of this test is to provide braking performance data.
10.6	**Structural Integrity Tests**	
10.6.1	Structural Shakedown Test	The objective of this test is to determine certain static characteristics (e.g., bus floor deflection, permanent structural deformation, etc.) under static loading conditions.
10.6.2	Structural Distortion	The objective of this test is to observe the operation of the bus subsystems when the bus is placed in a longitudinal twist simulating operation over a curb or through a pothole.
10.6.3	Static Towing Test	The objective of this test is to determine the characteristics of the bus towing mechanisms under static loading conditions.
10.6.4	Dynamic Towing Test	The objective of this test is to verify the integrity of the towing fixtures and determine the feasibility of towing the bus under manufacturer specified procedures.
10.6.5	Jacking Test	The objective of this test is to inspect for damage due to the deflated tire and determine the feasibility of jacking the bus with a portable hydraulic jack to a height sufficient to replace a deflated tire.
10.6.7	Hoisting Test	The objective of this test is to determine possible damage or deformation caused by the jack/stands.
10.6.8	Rollover Test	The objective of this test is to measure crashworthiness - the ability of the vehicle to protect its passengers in the event of a crash. Simulation based results for this test will be accepted.
10.7	**Noise Tests**	
10.7.1	Interior Noise and Vibration Test	The objective of these tests is to measure and record interior noise levels and check for audible vibration under various operating conditions.
10.7.2	Exterior Noise Test	The objective of this test is to measure and record exterior noise levels when a bus is operated under various conditions.

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Vehicle Specifications – 8.5 m Buses
Volume II

LIST OF SPARE PARTS TO BE PROVIDED BY THE COMPANY

The Company shall provide all replacement parts and supplies for all maintenance issues resulting from normal wear and tear as well as items requiring scheduled replacements throughout the term of the Agreement.

There shall be no vehicles unavailable for services due to the lack of spare parts at the depot site.

The table below is the minimum list of spare parts and supplies to be provided at all times during the Term of the Agreement. Spare parts and supplies listed in the table below are to be provided.

Table 1. Spare parts package to be provided

Part description	Quantity to be provided at end of the Term
Oil filter	60
Diesel engine oil (liters)	150
Fuel filter	15
Water trap filter	15
Set tappet cover gaskets	15
Oil separator	30
V-belt	15
Air filter	15
Compressed air drier cartridge	15
Poly V-belt	15
Poly V-belt tensioner	15
Starter, alternator, and vehicle battery	6
Full battery pack for electric propulsion system	3
Regenerative braking system assembly	3
Disc brake pads	15
Touch-up paint for all colors used on the vehicle (quantity in liters)	15
Full windscreen assembly	3
Side window glass unit	3
Head lamp assembly, including globes (2 lamps per set)	6
Rear brake light / indicator light assembly, including globes (2 assemblies per set, left and right)	6
Exterior wing mirrors (arms and mirrors, left and right mirrors per set)	10
Wiper blades (2 per set)	30
Interior light globes	15
Full seat assembly	6
Back and bottom seat cushion set	6
Floor cover material (quantity in square meters)	6
Door assembly (including doors, valves, switches)	3
Interior partition wall / advertising unit	3
Wheel unit	3
Engine cooling system unit	3
Transmission system / gearbox unit	3
Air conditioning unit	3
Vehicle Logic Unit (VLU)	3
Driver Data Terminal (DDT)	3
Digital Video Recorder (DVR)	3

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Door opening and closing synchronization unit	3
CCTV cameras	15
Interior variable messaging display unit	3
Infotainment display unit	3
Spare Wheel	1 per Bus

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LIST OF TOOLS TO BE PROVIDED

Sets of tools to be provided per depot

Table 2. Minimum list of tools to be provided

Description	Quantity to be Provided
Air chisel	1
Air drill	2
Air grinder	2
Air gauge kit – brake system	1
Air riveter	2
Alternator and starter test bench	1
Battery charger	1
Battery load tester	1
Bench grinder	2
Bench vice	2
Bottle jacks	2
CO2-welder	1
Compression tester	1
Creepers	2
Drill press	1
Electric drill	1
Electric grinder	1
Electric shear	1
Electric steel cutter	1
Extension leads	2
Floor material welder	1
Gas welder	1
Headlight tester/adjuster	1
Heavy duty socket set (multiple sizes, as required)	1
Hydrometer	2
Impact screw driver	1
Impact wrench, large size	1
Impact wrench, medium size	1
Impact wrench, small size	2
King pin press	1
Lead lights	6
Magnetic base and gauge	1
Metal sheet bender	1
Micrometer set	1
Multimeter	2
Paint heat kit	1
Polisher	1
Porta power	1
Portable arc welder	1
Portable gas welder	1
Power bar	2
Power jack (60 ton)	2
Puller set	1
Radiator pressure tester (diesel-fuel option only)	2
Refractometer – antifreeze tester	2
Sander	1
Spray gun	1
Torque wrench 0-60 Nm	1
Torque wrench 201-450 Nm	1

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Torque wrench 451-800 Nm	2
Torque wrench 61-200 Nm	1
Transmission jack (1000 kg)	1
Tire hammer	1
Tire stripping and fitting kit	1
Vernier set	1
Wheel stopper blocks	6

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Vehicle Specifications – 12m Buses
Volume I

1. BACKGROUND

Sindh Mass Transit Authority (SMTA) (hereinafter referred to as the "Employer") is committed to providing safe, comfortable and efficient public transport services in various districts of Sindh in order to ensure efficient levels of mobility. To this end, the Employer seeks to procure high quality public transport vehicles for the successful operation of these services.

2. SPECIFICATIONS

Table 2.1: Vehicle Specifications

NO.	SPECIFICATION	12-Meter Vehicles
Section 1: Specification Components		
1.1	**Vehicles, components and training to be provided**	The Employer will be entering into the Agreement with the Company who will have to, inter alia, procure the buses from the Sub-Supplier and operate and maintain the same for the purposes of the Project.
1.1.1	Vehicle fleet size	12 m Low Entry Diesel-Electric Series Hybrid Buses – 150 No. of buses
1.1.2	Spare parts package	The Company will be responsible to provide all replacement parts and supplies for all maintenance issues resulting from normal wear and tear as well as items requiring scheduled replacements. The Company will also be responsible for all materials and associated costs for repair actions caused by road collisions or other unscheduled incidents. The supply of spare parts and supplies by the Sub-Supplier will cover the period from the delivery of last bus to completion of first year of operations. There shall be no vehicles unavailable for services due to the lack of spare parts at the depot site. As a minimum, the quantity of spare parts given in Volume II of these Technical Specifications shall be kept on hand at the depot site at all times during first year of operations by the Sub-Supplier and after that by the Company. If a part or supply item is replaced, the stock at the depot site shall be replenished within 20 days. At the end of first year of operations, the Sub-Supplier will also provide a final stock of spare parts and supplies at the depot facility. The quantity listed in Volume II of these Technical Specifications 4 lists the minimum spare parts that will be included in the final stock of spare parts at the depot facility. If any spare part or supply listed in Volume II of the Technical Specifications is not required, the Company will make note of this non-applicability. As part of its technical proposal, the Company will indicate any additional spare parts and supplies that

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NO.	SPECIFICATION	12-Meter Vehicles
		will be provided during the term of the Agreement. At the end of first year of operations, the Sub-Supplier will also provide documentation on how the Company will procure any future spare parts and supplies. This information will include a full list of the required spare parts and supplies along with pertinent parts order numbers, estimated lead times for delivery, and payment mechanisms and payment terms.
1.1.3	Maintenance tools	The Sub-Supplier shall deliver one set per depot of the specified maintenance tools, software, and diagnostic equipment required to repair, service, and maintain each type of vehicles. The Employer aims to stock the depot facility with an initial set of required tools that will serve the typical day-to-day requirements of vehicle repair and maintenance. The diagnostic software and equipment are required for evaluating the status of the vehicle and for directing depot staff to take necessary corrective maintenance and repair actions. As a minimum, the Sub-Supplier shall provide the following items: ▪ One set per depot of the dollies and cradles necessary for the handling of engines, transmissions and other heavy components requiring specialist handling equipment. ▪ One set per depot of all tools required for the maintenance of the principal vehicle components, including all tools for standard maintenance, repair, and re-installing of vehicle components. ▪ One set per depot of maintenance diagnostic software with a multi-site and multi-use license. ▪ One set per depot of diagnostic equipment to evaluate the status of vehicle components, including diagnostic equipment for the engine unit, gearbox, system electronics, air suspension system, and wheel and axle alignment. Volume II of these Technical Specifications lists the minimum tools requirements to be provided by the Company at the end of the Term of the Agreement.

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NO.	SPECIFICATION	12-Meter Vehicles
		The Company must also provide a list of any additional tools required to service the vehicles, and particularly the Company must list any specialised tool(s) requirements.
1.1.4	Warranty	The warranty shall be provided on the chassis, body, and all vehicle components to protect against any defects in design, workmanship, equipment, or materials. With the exception of the electric storage and propulsion system (i.e. battery packs and electric motors), the warranty for all other parts and components will commence from the date of delivery of the last vehicle to first year of operations. For the battery packs and electric motors, the Company/Sub-supplier will provide all necessary replacements for 12 years or 1.2 million kilometers of service, whichever of these two milestones are realized first. The battery packs shall be replaced under this warranty whenever the battery capacity falls below 70% of its original capacity at full charge. The warranty will stipulate that the Company/Sub-Supplier is responsible for all repair and replacement costs due to the premature failure of any part or component due to defects in design, workmanship, equipment, or materials. The warranty will cover all costs associated with repairs or replacements due to the actions of the Company. Among the types of repairs or replacements not covered under the warranty are road collisions or other unscheduled incidents.
1.1.5	Registration, licensing and homologation	The Company will ensure all vehicles are locally registered, licensed, and homologated by the responsible authorities. While the Employer will be the named leads in officially registering and licensing the vehicles, the Company shall lead the facilitation of all required processes to ensure registration, licensing, and homologation.
1.1.6	Cost of Inland Transport and associated insurance to Delivery Point	The Company will be responsible to bear all the cost of inland transport and associated insurances while delivering all the Goods to the designated Bus Depots. Insurances procured by the Company should include comprehensive insurance for terrorism, vandalism and sabotage. The Company shall ensure that the relevant insurances shall continue to be valid for three (3) months after the delivery of the Goods to the designated Bus Depot. The Company will be responsible for complete insurance throughout the Term of the Agreement.
1.1.7	Maintenance supervision	The Sub-Supplier shall provide vehicle maintenance supervision for a period of 12 months from the date of acceptance of last tranche of vehicle.

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NO.	SPECIFICATION	12-Meter Vehicles
		The Sub-Supplier shall be responsible for the maintenance supervision and all tasks/responsibilities required under it since the time first vehicle will be delivered to site, however, contractual completion time of 12 months for maintenance supervision shall start from acceptance of final tranche of vehicles. During this time period, the Sub-Supplier will be responsible for overseeing all scheduled maintenance activities of the vehicles. The Company will be providing the maintenance staff who will be advised by the Sub-Supplier's Maintenance Supervisor in carrying out the routine maintenance activities. The Sub-Supplier shall ensure that sufficient maintenance is applied during the 12-months period so that at least 98% of the fleet will be operationally available at any time during system operating hours. "Operationally available" means that the vehicles are in a functional condition that could be utilized in customer services without any restrictions while meeting all requirements in this Technical Specification. The Maintenance Supervisor position will be full-time (i.e. 40 work hours per week). The maintenance supervision activities will take place at the depot site. The Maintenance Supervisor will work closely with the Employer to appropriately schedule his/her time at each depot site. During the period of maintenance, the Company shall be responsible for supervising all scheduled maintenance activities of the vehicles. The maintenance services will include but not limited to engine tuneup, lubrication, replacement of filters, coolant, spark plugs, fuses, worn wiper blades, worn brake pads and linings or worn clutch linings, replacement of tires (if required), batteries, air conditioning. The Company shall also provide all replacement parts for all maintenance items caused through normal wear and tear as well as scheduled replacements. Conversely, the Company will be responsible for all repair actions caused by road collisions or other unscheduled incidents mentioned in next para. The Company shall also be responsible for any maintenance arising out of the following; ✓ Repairs and adjustments required as a result of racing, overloading, negligence, modification, alteration, tampering, disconnection, improper adjustments or repairs, accident and use of add-on-

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NO.	SPECIFICATION	12-Meter Vehicles
		parts/material. ✓ Cosmetic or surface corrosion from stone chips or scratches in the paint. ✓ Damage or Surface corrosion from the environment such as acid rain, air borne fall out (chemicals, tree sap, etc.), salt, hail, windstorms, lightning, floods, other acts of God and the like is not covered. ✓ Repairs and adjustments caused by improper maintenance not carried out by the Company, use of fluids other than the fluids specified in manufacturer's manual. ✓ Normal noise, vibration, wear, tear or deterioration such as discoloration, fading, deformation or blur.
1.1.8	Maintenance training program	The Company shall deliver or cause to be delivered a maintenance training program that will properly enable its personnel to independently maintain its vehicle fleet after the end of first year of operations. The training program will take place at intervals over at least 200 hours of actual training sessions. These sessions will include both classroom instruction as well as hands-on repair work in the depot maintenance area. Approximately 5 persons from Company will be trained. At the end of first year of operations, the Company will also deliver a second set of training sessions. These sessions will specifically address future maintenance issues to be faced by the Company's personnel. In particular, this final training will focus on any potential engine rebuild work or battery pack replacement work that would be required. This second set of training sessions should cover at least 20 hours of training. Approximately 5 persons from Company will be trained in this final training program. The schedule of the maintenance training program is: i. Phase I - Completion of the first maintenance training program: Within maximum of six (6) months from the Effective Date. ii. Phase II - Completion of the second and final maintenance training program: At the end of first year of operations.
1.1.9	Driver training program	In order to facilitate a disciplined operation of the vehicle fleets, the Company shall implement a driver training program that will instill safe and professional driving skills. The training course will culminate in the drivers receiving a course (competency) certificate indicating driving proficiency. The driver training program will prepare the drivers to undertake licensing exams under Applicable Law to operate large public transport vehicles.

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NO.	SPECIFICATION	12-Meter Vehicles
		Approximately [250] vehicle drivers over a period of two months. Each trainee shall spend at least 8 hours in the actual road testing of a vehicle during the course of the training program. All related fuel expenses for this training will be borne by the Company. The selection of the drivers for the course will be the responsibility of the Company. The Company will also have to arrange the venue for such conducting such training sessions. A total of 80 hours of training, both classroom and road testing, shall be delivered (4 hours per day for 4 weeks). Drivers will be available for training for 4 hours per day, 5 days per week during a period of at least 4 weeks. The course topics will include: ▪ Driving skills ▪ Traffic regulations ▪ Safety ▪ Emergency protocols ▪ Customer service ▪ Public transport license testing. The actual testing for a National public transport driver's license will be the responsibility of the Company. The Company will be responsible for all testing costs, such as application fees. The schedule of driver training program is: i. Commencement of driver training program: Within maximum of six (6) months after the Effective Date ii. Completion of driver training program: Within maximum two (02) months after the commencement of driver training program.
1.2	**Fleet Delivery Schedule**	i. Completion of first full unit at Factory: Sixty (60) days from the date of the Effective Date. ii. Delivery of single batch/tranche of vehicles comprising of a full (100%) of the 12-meter vehicle quantity: within 90 days from the date of Approval of Final Production Bus Design.
1.3	**Approval process**	As per the relevant provisions of the Agreement including the approvals set out in the Agreement.
1.4	**Payment Schedule**	As per Schedule R *(Schedule of Payment Milestones)* of the Agreement.

Section 2: Specifications Summary		
S. No.	**Criteria**	**Specification**
1.	Model year	2021 or latest
2.	Vehicle length (minimum - maximum)	11.5 - 13.0 meters

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3.	Vehicle width (not including mirrors)	2.55 meters
4.	Vehicle height (from road surface to highest point on roof) (maximum)	3.5 meters
5.	Floor height (from road surface to interior floor at doorways)	350 mm for Karachi 150 buses for Karachi
6.	Ceiling height in front passenger area (from interior floor to ceiling) (minimum)	2.1 meters
7.	Clearance at doorway (from interior floor to door header) (minimum)	1.9 meters
8.	Axle load, front axle (maximum)	7,700 kg
9.	Axle load, middle axle	Not Applicable
10.	Axle load, rear-axle (maximum)	13,000 kg
11.	Grade ability (Fully Laden)	Min 20%
12.	Angle of Approach (Fully Laden)	>=7 degrees
13.	Angle of Departure (Fully Laden)	>=7 degrees
14.	Steering	Driver compartment on right- hand side of vehicle for vehicle operation on left-hand side of Roadway. Power Steering hydraulic assisted with height and angle adjustment
15.	Useful life of vehicle (projected)	1.2 million km or 12 years
16.	Number of median-side passenger doorways	2
17.	Center-line distance between the two doorways	2.7 meters
18.	Free door width per passenger door (minimum)	1.2 meters
19.	Number of curb-side passenger doorways	2
20.	Number of manual flap-type boarding bridges from curb-side doors and median-side doors	2 (one for middle door)
21.	General seat configuration	2 x 2 (predominantly)
22.	Seat pitch (minimum)	730 mm
23.	Seat width (minimum)	420 mm
24.	Number of passenger seats (including preferential seats but excluding flip down seats and driver seat) (minimum)	36
25.	Number of wheelchair bays (minimum)	1
26.	Total number of flip-down seats in wheelchair bay(s) (minimum)	2
27.	Length of wheelchair bay(s) (minimum)	1.3 meters each
28.	Number of seats in front women-only section (minimum)	8
29.	Thickness of flooring material (minimum)	2 mm
30.	Side window height (minimum)	980 mm

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31.	For the median side (right-side) of the vehicle, distance of outside edge of the wing mirror from the vehicle body (maximum)	150 mm
32.	For the curb side (left-side) of the vehicle, distance of outside edge of the wing mirror from the vehicle body (maximum)	200 mm
33.	Tire width	275 mm
34.	Tire construction type	Radial
35.	Distance between outside edge of tire sidewall to outside edge of vehicle body for front axle (maximum)	125 mm
36.	Distance between outside edge of tire sidewall to outside edge of vehicle body for middle axle (maximum)	Not Applicable
37.	Distance between outside edge of tire sidewall to outside edge of vehicle body for rear axle (maximum)	80 mm
38.	Power ratio (minimum)	15 HP per ton gross vehicle mass
39.	Power on gradient (minimum)	Maintain 50 km/hr on 4% up grade and 30 km/hr on 8% upgrade when fully loaded
40.	Projected maximum operating speed (maximum)	80 km/hr
41.	Propulsion system	Diesel-electric series-parallel hybrid
42.	Size of electric motor for propulsion system (peak power minimum)	120 kW
43.	Internal noise standard (maximum)	80 dB
44.	External noise standard (maximum)	85 dB
45.	External noise standard when idling (maximum)	65 dB
46.	Turning radius, outer wheel track (maximum)	12.0 meters

Section 3: Legislation and Standards		
3.1	**National legislation and standards**	All vehicles shall comply with all national, provincial and local legislation, regulation or by-law as well as with the relevant national standards. The Company is expected to be fully familiarized with the legal requirements of public transport vehicles, of the types proposed, in the given national context.

Section 4: Weights and Dimensions		
4.1	**Axle loads**	The vehicle axles must be capable of operating with the following maximum loads: ▪ Front axle: 7,700 kg ▪ Middle axle: Not Applicable ▪ Rear axle: 13,000 kg
4.2	**Overall vehicle width**	The vehicles shall meet a targeted width of 2.55 meters, as measured from one exterior side to the other (excluding wing mirrors). This dimension shall

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		be achieved within a set range of between 2.54 meters to 2.56 meters.
4.3	**Floor height**	The vehicles are to be low entry, allowing ease of access for the curb-side boarding. The targeted floor height, based on the distance from the road level to the floor of the vehicle at the doorways, is 350 mm **for 150 buses for Karachi**. This dimension must be achieved within a tolerance of +/- 10 mm even when the vehicle is unevenly loaded with passengers bunching on one side. The rear portion of the vehicle (i.e. the portion of the vehicles after the last doorway) may be raised with steps.
4.4	**Vehicle length**	The vehicle length may be in the range from 11.5 meters to 13.0 meters.
4.5	**Interior floor to ceiling**	The interior clearance height (from the vehicle floor to the ceiling) for the front passenger area shall be a minimum of 2.2 m. The interior clearance height (from the aisle way floor to the ceiling) for the raised rear passenger area shall be a minimum of 1.85 m. At the doorways, the minimum clearance height, from the vehicle floor to the door header, shall be 1.9 m. The Sub-Supplier is encouraged to maximize ceiling clearance heights.

Section 5: Body		
5.1	**Structure**	The body shall be designed to meet a useful vehicle life of 12 years or 1.2 million kilometers, whichever of these two milestones arrive first. The body shall be reinforced at joints where stress concentration may occur. The vehicle shall safely withstand road shocks and other conditions found in urban services. Body paneling shall have adequate thermal and acoustic properties and shall not vibrate unduly while the vehicle is in operation. The structure shall meet the compliance standards for the rollover test stipulated through Regulation 66 of the United Nations Economic Commission for Europe (ECE-R66).
5.2	**Materials and corrosion resistance**	High strength corrosive-resistant material shall be used in construction of the body. Mild steel is the minimum requirement for the vehicles. The use of materials with superior strength, corrosion resistance, and overall durability is encouraged. The use of stainless steel alloys (such as 3CR-12), high-carbon steel, glass-reinforced plastic (GFRP), aluminum, and other materials should be considered, particularly for critical sections of the body and structural elements.
5.3	**Body Shape**	This new public transport project represents an overall transformation of public transport for the metropolitan areas of various districts of Sindh. The aesthetics of the vehicles will play a significant role in transforming the public's perceptions of public transport services.

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		The Employer therefore requires a body design that evokes a modern, tram-like appearance with sleek and aerodynamic curve lines. This visual effect can be achieved by: i. a rounded vehicle front with a curved windscreen (Figure 1); ii. a slanted vehicle front (Figure 2); or iii. a rounded augmented body piece added to the front roof-line of the vehicle (Figure 3). Option 1 (curved vehicle front) and option 2 (slanted vehicle front) may also include the rounded augmented body piece on the roof-top (option 3). Figures 1, 2, and 3 provide illustrations of the acceptable modern body shape options. A flat vehicle front with no rounded, aerodynamic features will mean that the Buses will be considered non-compliant to the technical specifications.
5.4	**Conduciveness to washing**	The exterior and body features, including grilles and louvers, shall be shaped to allow complete and easy cleaning by an automatic vehicle washer without snagging washer brushes. Water and dirt should not be retained in or on any feature of the vehicle after leaving the washer.
5.5	**Painting**	
5.5.1	Vehicle livery	Vehicle exteriors shall be used for advertisement to generate Non-Fare Revenue (NFR). The details of the final design shall be provided during the pre-production period.
5.5.2	Painting of vehicle body	The painting of the vehicle shall employ modern best practice. Paints shall produce a superior finish that will support efforts to position the system as a choice option for all passengers. It is preferred that the paint materials and application procedures utilized will be as environmental-friendly as is practically possible, including consideration of water-based paints. The paint shall be hard wearing and able to withstand the operating conditions of an urban bus. Such wear resistance shall include the ability to withstand regular machine-washing of the vehicles. The process and materials used shall be such as to allow ready repainting of minor scratches and scrapes. All primers, sealers, paint and any other materials used shall be compatible to assure chemical bond, adhesion, overall gloss retention, and to assure full warranty by the manufacturer. The finish coat shall be free of runs, sags, and areas of no gloss. There shall be no bare or exposed metal surfaces showing on the exterior of the vehicles. If vehicle components are to be imported

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		and shipped via sea, then a special coating shall be applied to protect against damage from sea spray. It is to be noted that there will be advertisements on the external side of the bus to exploit Non-Fare Revenue Potential. Hence the paint should be such that it facilitates the purpose.
5.5.3	Undercoating	The underside of the under-frame, flooring and stepwells, wheel-housings and all exposed underfloor surfaces shall be treated with a fire-retardant coating.
5.6	**Doorways**	
5.6.1	Number of passenger doors and dimensions	The vehicle shall have two median-side passenger doorways and two curb-side passenger doorways. The doorways shall be located between the two axles of the vehicles. The distance between the centerline of the first and the second for both median side and curb side shall be 2.7 m. Each doorway will provide a minimum free width of 1.2 m for ease of passenger entry and egress. The minimum clearance height at the doorway shall be 1.9 m.
5.6.2	Door type and characteristics	Doors should be two-leaf inward swinging doors. Structure of the doors, their attachments, inside and outside trim panels, and any mechanism exposed to the elements shall be corrosion-resistant. Door panel construction shall be of corrosion-resistant metal or reinforced non-metallic composite materials. The doors, when fully opened, shall provide a firm support and shall not be damaged if used as an assist by passengers during ingress or egress. Door edges shall be sealed to prevent infiltration of exterior moisture, noise, dirt and air elements from entering the passenger compartment, to the maximum extent possible based on door types. The closing edge of each door panel shall have no less than 5 cm of soft weather stripping. The doors, when closed, shall be effectively sealed, and the hard surfaces of the doors shall be at least 10 cm apart (not applicable to single doors). The combined weather seal and window glazing elements of the front door shall not exceed 10 deg of binocular obstruction of the driver's view through the closed door.

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5.6.3	Opening / closing mechanism	Doors shall be electro-pneumatically operated by the driver and shall be able to be opened or closed independently or in unison with each other. System shall include an audible announcement that informs passengers when the doors are either about to open or close. Door movements shall also be shown by luminous indicators. The indicators shall show red when the door is closed and orange when the door is open. Vehicle door opening and closing shall be wirelessly communicated to the sliding doors at the station interface. The design of the wireless communication and the actual activation of the station doors must be approved by the Employer prior to installation. The following requirements must be met: ▪ The activation of bus door opening/closing must be linked and coordinated with the station doors opening/closing. ▪ The station doors will open 0.5 to 1.0 seconds after the vehicle doors and close 0.5 to 1.0 seconds before the vehicle doors. This must also be coordinated with the expansion/contraction of the boarding bridges. The time delay between the opening/closing of the vehicle and station doors must be configurable and adjustable. ▪ The wireless signal transferred from the vehicle to the station must be via a secure communication protocol that will ensure that the station doors are only activated by valid requests. The Company will work closely with the Employer to provide an open standard door opening system that will be compatible with the third-party company providing the station door system. For this application, provisioning of wiring or any other hardware should be provided in buses by the Company. ▪ Stations/platforms will be of varying sizes with different doorway openings. The Company must ensure that smaller vehicles with fewer doors only activate the relevant and corresponding station doors. Station doors with no corresponding vehicle door must not open.
5.6.4	Door safety and emergency operation	Doors shall not open until the vehicle comes to a stop. Doors shall have an interlock control with brake and accelerator to prevent movement of vehicle with doors in open position. The doors shall function even with the ignition off. Anti-pinch sensors shall be installed to retract the door automatically if any obstruction with a width of 25 mm or greater is caught between any point of

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		the doorway. The anti-pinch system will prevent injury due to wrists, ankles, or belongings being caught in the doorway.
5.6.5	Alignment indicators (For future provisioning)	Visual alignment indicators shall be utilized to properly align the vehicle both along the length of the stations as well as the distance away from the station platform. The stopping point for the vehicle along the length of the station platform shall be demarcated by two decaled lines on the side driver window. These lines will correspond to a chevron sign on the side of the station. For the alignment of the pathway towards the station, decaled lines on the front windscreen will be matched with a line in the roadway. The lines in the windscreen will assist the driver in aligning to the roadway marking. The decaled lines on the side window and the front windscreen will be made of a durable and visible material. The precise location of the markings on the side window and windscreen will be provided by the Employer. It is up to the discretion of the Company to install the requirements either locally or at the manufacturing site.
5.6.6	Closing Force	Closing door edge speed shall not exceed 30 cm per second, and opening door speed shall not exceed 50 cm per second. Power doors shall not slam closed under any circumstance, even if the door is obstructed during the closing cycle. If a door is obstructed during the closing cycle, the pressure exerted on the obstruction shall not increase once initial contact has been made. Doors shall be equipped with a sensitive edge or other obstruction sensing system such that if an obstruction is struck by a closing door edge, the doors will stop and/or reverse direction prior to imparting a 5-kilogram force on 7 square centimeters of that obstruction. Whether or not the obstruction sensing system is present or functional it shall be possible to withdraw a 3.8-centimeter diameter cylinder from between the center edges of a closed and locked door with an outward force not greater than 16 kilograms.
5.7	**Windows**	

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5.7.1	Side and rear windows	Windows shall be provided along the sides of the vehicle as well as the rear of the vehicle. The side and rear window areas shall be as large as possible to give the seated and standing passengers an unobstructed exterior view. The window unit shall be a minimum of 980 mm in height. The Sub-Supplier is encouraged to provide larger panoramic-styled windows. However last rear window can be smaller in size for any space constraint. Windows shall be of the bonded type. Windows shall not be mounted in rubber moulds. All glass shall be tinted to an approximate level of 70% to 80% light transmission (i.e. glass permits approximately 70% - 80% of light to enter). Side windows shall have the look of a seamless or continuous window when viewed from exterior of the vehicle. The exterior of the windows shall withstand damage and scratching from use of vehicle wash system. This would include, but not limited to soaps, spinning brushes, as well as hand brushes. A positive lock type emergency latch shall be furnished on each emergency window frame. Both sides of the vehicle shall have a window decal describing emergency window operation procedures. The driver's side windows shall be split, sliding windows. The sliding portion shall move freely without rocking or binding. Driver windows shall be glazed with tinted laminated safety glass. Glass shall be tinted at the top third (1/3), to meet safety standards.
5.7.2	Opening of windows	While the vehicles will be fitted with air conditioning, there will be the option of manually-opened vents to be used in case of air conditioning failure besides the roof vents. These windows shall incorporate an upper transom portion. The transom shall be between 25 and 35 percent of the total window area. The lower portion of the window shall be fixed. The transom portion shall be hinged along the lower edge and open inward. This should be visually merged as much as possible with the fixed windows around them. However, the window vents will normally be locked during periods of the year when air conditioning is to be utilized. The unlocking of the windows should be controllable by the driver via keys whereby driver can walk from the station and open them. They should not be unlocked by a passenger. The locking can be done manually at each vent by simply closing them. Moreover, three (3) set of keys should be provided for each bus.

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5.7.3	Windshield and windshield wipers	The windshield shall be designed for easy replacement and maintenance. Windshields shall be angled sufficiently to reduce glare from the interior vehicle lighting. A fully adjustable sun visor shall be installed for driver's use. The installation shall preclude vibration in normal street operation. The visor shall be a full see through, mesh style with a release cord that allows the visor to return to the normal position. Two electric-operated heavy duty windshield wipers shall be furnished. The wiper motors shall be variable speed having at least a high and low speed setting with an intermittent setting. The windshield wiper system shall include a "self-parking" feature, which means the wiper returns to its base position when the wiper is disengaged. A windshield washer shall also be provided. The largest wiper blade possible for windshield design shall be used.
5.8	**Exterior panels, roof gutter and bumpers**	
5.8.1	Exterior panels	Exterior panels shall be sufficiently stiff to prevent vibration, drumming or flexing while the vehicle is in service.
5.8.2	Roof gutter	Roof gutters shall be installed if body style does not stop water flow into or on windows, doors, and mirrors. The roof gutters will be installed over the side windows and doors, if necessary. When the vehicle is decelerated, the gutters shall not drain onto the windshield, or operator's side window, or into the door boarding area. Cross sections of the gutters shall be adequate for proper operation.
5.8.3	Bumpers	No part of the vehicle except Bumpers shall be damaged as a result of a ten (10) kph impact at the front or rear of the vehicle. The energy absorption system of the bumper areas shall not require service or maintenance in normal operation during service life of the vehicle.
5.8.4	License Plate provisions	Provisions shall be made to mount local standard size license plates on the front and rear of the vehicle. The Company is encouraged to arrange license plate dimensions which are standard as per industry practices. These provisions shall direct mount or recess the license plates so that they can be cleaned by automatic vehicle washing equipment without being caught by the brushes. License plates shall be mounted according to local rules and shall not allow a toehold or handhold for unauthorized riders.
5.9	**Wing mirrors**	Vehicles shall be equipped with two outside rear view mirrors, mounted on each front corner of the vehicle. The wing mirrors shall be motorized. The control switches shall be mounted on the driver's control console. The mirrors shall be fully adjustable to give the driver a full view of the required area.

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		In order to ensure that the wing mirrors will not collide with the stop/station infrastructure during normal operation, the distance from the outside edge of the right-side wing mirror to the outside edge of the vehicle body shall not exceed 150 mm. For the left-side wing mirror, the distance from the outside edge of the wing mirror to the vehicle body shall not exceed 200 mm. In order to ensure effective driver visibility, the wing mirrors shall have a minimum width of 170 mm and a minimum height of 250 mm.

5.10	**External access points**	
5.10.1	External access doors	Access doors shall be provided, where necessary, for the easy maintenance of equipment. The access doors shall be provided with positive hold open devices and corrosion resistant latches. Access openings shall be sized for easy performance of tasks within the compartment including tool operating space. Access doors shall be of rugged construction and shall maintain mechanical integrity and function under normal operations throughout the service life of the vehicle. They shall close flush with the body surface. When engine access door is open, it shall not obstruct the rear vehicle lights. Access to the engine compartment, transmission compartment, radiator compartment, and ITS control compartment doors shall be controlled by some form of key access ("T" key style is acceptable). There shall be an access door for emergency workers to gain entry to the "Battery Disconnect" and it shall be labelled as such. This access door shall not require tools to gain access.
5.10.2	Service Area Lighting	Lights shall be provided in the engine and all other compartments, where service may be required, to generally illuminate the area for night emergency repairs or adjustments. Sealed lamp assemblies shall be provided in the engine compartment and shall be controlled by a switch located near the rear start controls in the engine compartment. Necessary lights, located in other service compartments, shall be provided with switches on the light fixture or convenient to the light.
5.10.3	Roof escape hatch/air vents	At least one emergency roof escape hatch shall be provided in each vehicle. The hatch shall have a seal around the opening, and shall be opened by pulling the release handle. Instruction decals shall be placed on the underside of the hatch. The roof hatch may also act as a fresh air ventilator at times when the air conditioning is not in use.

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Section 6: Interior		
6.1	**Colors, maps, and advertising**	
6.1.1	Color Scheme	The color of the wall panels shall contrast with that of the surface of the floor and this contrast is to be most clearly defined at the junction of the floor to the wall. The actual colors to be utilized will be determined by the Employer during the pre-production period. The color of the wall panels shall contrast with that of the surface of the floor and this contrast is to be most clearly defined at the junction of the floor to the wall. The actual colors to be utilized will be determined by the Employer during the pre-production period.
6.1.2	Panels and trim	The interior of the access doors shall blend in with the appearance of the vehicle interior. The interior side walls, ceiling trim panels, and sections between large side windows down to the bottom of the window openings shall consist of an aesthetically-attractive and durable material. The materials must be approved by the Employer during the pre-production period. The interior of the access doors shall blend in with the appearance of the vehicle interior. The interior side walls, ceiling trim panels, and sections between large side windows down to the bottom of the window openings shall consist of an aesthetically-attractive and durable material. The materials must be approved by the Employer during the pre-production period.
6.1.3	System map	To provide excellence in system legibility, system network maps will be placed on all vehicles. The system maps will be provided in a large size that will be visible to the passenger area to the extent possible. At least two locations should be provided inside the buses for a system map. The actual provision of the maps is the responsibility of the Employer.
6.1.5	Advertising	In order to optimize system revenues, some discrete advertising space will be permitted inside the vehicles. The possible spaces for the advertising include the space above the windows as well as on any partition panels not utilized for the system route map. The advertising spaces will be designed to include mechanisms to hold the advertising in place. The Sub-Supplier will note the proposed locations of the advertising in the submitted interior layout drawings of the vehicle.
6.2	**Grab-rails/stanchions/straps**	

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6.2.1	Grab-rails and stanchions	Full grip stanchions and grab-rails shall be provided for the safety of the standing passengers and for ingress and egress. The stanchions and grab rails shall be properly supported and held in place according to industry standards. Ceiling grab-rails, one on each side of vehicle aisle way, shall be even with aisle edge of the seats. If relevant to the chosen interior design, a horizontal passenger assist shall be placed across the front of the vehicle in order to prevent injuries on the windshield in the event of a sudden stop. A high-contrast color shall be used for the grab-rails and the stanchions. The color will be determined by the Employer during the pre-production period. The height and number of grab handles should facilitate passenger in having comfortable standing position.
6.2.2.	Straps	Color coordinated subway straps shall be installed on grab-rails running length of vehicle. The straps shall be of a soft material such as leather and shall have a positive fastening system.
6.3	**Internal layout**	The Sub-Supplier shall provide drawings of the proposed interior layout of each vehicle. The chosen layout may be altered through discussions with the Employer, provided there are no cost implications of such alterations. An example of a possible layout is provided in figure 6.
6.4	**Passenger seats**	
6.4.1	Seating configuration	In general, seats will be oriented in a 2 x 2 configuration, with the exception of areas such as the back of the vehicle and the flip-down seats in the wheelchair bays. Since customer comfort and personal security is a principal objective, a configuration of 3 x 3 or 3 x 2 is not permitted. For the most part, the seats will face forward. However, the flip-down seats in the wheelchair bays will be orientated to the side. It is also acceptable to include some side-facing or rear-facing seating if the configuration helps to maximize the number of seats. For example, rear-facing seating may be applied for this purpose on the rear-side of the wheel wells.
6.4.2	Seating dimensions	A minimum 730 mm leg pitch shall be provided. At preferential seats, the clear distance from the front of the seat to the rear of the next seat shall not be less than 230 mm. Where the preferential seat faces a bulkhead or partition more than 1,200 mm in height, this distance is to increase to a minimum of 300 mm. The seat width shall be a minimum of 420 mm.
6.4.3	Number of seats	A minimum of 26 seats shall be provided. This amount excludes the additional seats provided by flip-down seats in the wheelchair bays. It is expected that the one wheelchair bay of 1.3 m each in length will each be able to accommodate space for at least a total of two flip-down seats.

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6.4.4	Standing passengers	No vehicle is expected to exceed a standing passenger capacity of 6.0 passengers per square meter. However, the axle load specifications have been set to accommodate temporary conditions of over-crowding.
6.4.5	Seating materials	The base structure of the seat shall be hard, durable plastic. The passenger contact areas at the base and at the back shall be a soft padded plastic material. All materials shall be durable and easily maintained and cleaned. The color of the seat will be selected by the Employer during the pre-production period. The color of the seating in the women-only section of the vehicle shall be different than the color of the seating in the men's section of the vehicle. An example of the type of seating material being sought by the Employer is provided in figure 6. Example images of the proposed options for the seat type and materials are required to be provided. The type, style, and color of the seating materials must be approved by the Employer during the pre-production period.
6.4.6	Hand-hold rail	All aisle passenger seats shall be equipped with a hand-hold rail at the top of the seat back-rest. A hand-hold rail at the sides is encouraged, since it is often useful for small children.
6.5	**Specials needs seating**	The vehicle shall include provisions for wheelchair-compatible open bays as well as priority seating areas for women only.
6.5.1	Wheelchair bays	Minimum one wheelchair bay shall be provided. Wheelchair bay shall be forward facing. Minimum of 1 wheelchair bay will be accommodated in the wheelchair bay area. Each wheelchair bay shall be a minimum of 1.3 m in length. The wheelchair bay will also accommodate flip-down seating that can be utilized when no wheelchair patron is using the space. The wheelchair bay is to be provided with approved independent passenger and wheelchair restraint systems including seat belts and stanchions as necessary. The equipment is to comply with ISO 10542. The wheelchair bay shall include a headrest backboard to minimize injury in case of an accident or sudden stop. The wheelchair bay shall be designated a priority area for wheelchair patrons as well as other disabled persons and customers with prams. The wheelchair bays shall have signage indicating this prioritization. A pictogram indicating this priority will also be placed adjacent to the exterior of the doorway nearest to the wheelchair bay.
6.5.2	Preferential seating area for women	The front section of the vehicle will be for women only in order to reduce incidences of harassment. These seats should be a different identifiable color

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		than the seats in the men's section of the vehicle. Likewise, pictograms shall be placed on the walls of the front section of the vehicle to note that the area is only for women and disabled passengers.
6.6	**Driver's compartment**	
6.6.1	Driver's seat	The driver's seat shall include: headrest, high back, dual air lumbar, air operated side bolsters, and an automatic/manual fore and aft slide. The driver's seat shall be upholstered in all cloth fabric. The driver's seat will be equipped with a 3-point seat belt, and a built-in maxi alarm indicating that the brake has not been applied when driver takes pressure off the seat.
6.6.2	Enclosed compartment	The driver's area shall be an enclosed compartment. Behind the driver shall be a partition wall, but the wall shall include a window to allow visibility into the passenger area. To the left-side of the driver shall be a clear upper wall and doorway to allow the driver to have full peripheral vision and to be able to communicate freely with the conductors. The doorway to the driver's compartment shall be lockable for security purposes. Figure 7 provides an example of an enclosed driver's compartment.
6.6.3	Compartment ergonomics	The Company shall supply or cause to be supplied state of the art ergonomics engineering to the vehicle driver's environment to maximize driver comfort and ease of operation for extended periods of time. All switches and controls necessary for the operation of the vehicle, including door master, shall be conveniently located in the driver's area and shall provide for ease of operation.
6.6.4	Interior mirrors	In addition to the presence of cameras and displays, mirrors shall be provided for the driver to observe passengers throughout the vehicle without leaving his/her seat and without shoulder movement.
6.6.5	Signage	Signage shall be provided near the driver's compartment. This signage shall state that passengers shall not address the driver, except in emergency situations. The signage shall also state that the driver carries no cash and that any of abuse of the driver shall result in prosecution.
6.6.6	Components	The following are the various components to be found in the area of the driver's compartment: ▪ Basic toolbox fitted behind the driver ▪ Horn ▪ ITS components (described below) ▪ Driver's sun visor on both the right and left hand windscreen ▪ Fire extinguisher placed near the driver, approved to national standards ▪ Triangle kit for roadway incidents ▪ Lockable storage holder next to driver to place personal belongings ▪ Provision of space / holders for operating license certificate and valid operational permit on dashboard or driver side window.

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6.7	**Floor**	
6.7.1	Floor base	The floor base shall be resistant to moisture and moisture related deterioration. The underframe shall have sufficient stiffeners to keep the flooring from excessive flexing under maximum loads.
6.7.2	Floor covering	The floor covering shall be both aesthetically pleasing as well as durable. The floor covering shall be capable of withstanding daily mopping / wet scrubbing. The floor covering shall be a heavy-duty non-slip material with a minimum thickness of 2 mm. The walking area of the floor shall be level in each section. The color of the floor at the passenger doorways shall contrast with that elsewhere in the vehicle. In front of each doorway, the floor color will be a high-contrast yellow to indicate that passengers are not to block that area. The Sub-Supplier shall provide samples of the floor material options being offered. The type and color of the floor covering must be approved by the Employer during the pre-production period.
6.7.3	Access doors in floor	Floor inspection trap doors shall have a quick-acting coupling system to facilitate the access and maintenance of chassis components. All holes in the floor material, for mounting bolts, seams, etc., shall be caulked and sealed before sanding. Access openings in the floor shall be avoided with the exception of access for the fuel tanks sending unit and driveshaft.
6.7.4	Wheel housing	To the extent, any exposed wheel housings are present in the interior space: ▪ The wheel housings shall be trimmed and sealed at its mating edges. ▪ The color of the wheel housing shall compliment vehicle interior. The color will be determined by the Employer during pre-production. ▪ The wheel housing shall be finished on the vehicle interior to withstand scuffing, wear and abuse from passenger feet.
6.8	**Partition walls**	Partition walls shall be installed just to the front of the second median doorway in order to help provide some protection between the women's and men's area of the vehicle. A partition wall shall also be installed to the rear of the wheelchair bay. The Sub-Supplier will also identify a location in the rear of the vehicle (i.e. behind the articulation unit) to place a partition wall that may be used for placement of a route map and/or advertising. A partition wall shall also be installed behind the driver; this barrier shall be transparent above 1,000 mm so that the driver has a clear view of the passenger area.

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		Some of the partition walls will be fitted to accommodate a system map and/or advertising. Partitions shall incorporate hand-holds that assist seated passengers in arising or steadying themselves. Adequate clearance shall be provided for passenger's hand between panel and rear half of door, during complete opening and closing cycle. Material color and finish to be determined during the pre-production period.
6.9	**Fire and safety equipment**	The Company shall furnish and install or cause to be furnished and installed a dry chemical extinguisher with hose assembly. The fire extinguishers shall be located in easily accessible locations. The interior of the vehicle shall be fitted with the required fire and safety decals. The placement of the fire equipment and the decals shall be approved by the Employer during the pre-production period.
6.10	**Interior insulation**	Aside from the general thermal and acoustic requirements for the body, any seat area over the engine shall be heavily insulated for both noise and heat protection with fiberglass blankets or approved equal.

Section 7: Mechanical		
7.1	**Engine / propulsion system**	
7.1.1	Propulsion system	The vehicle fleet shall be based on a regenerative diesel-electric series-parallel hybrid series/parallel system. Electric propulsion will be generated from regenerative braking system.
7.1.2	Propulsion System Service	The propulsion system shall be arranged so that accessibility for all routine maintenance is ensured. No special tools, other than dollies and hoists, shall be required to remove the propulsion system or any subsystems. However, the Employer shall recognize that properly rated test equipment and safe electrical work practices are essential when servicing high-voltage hybrid components. The exhaust system, air cleaner, air compressor, radiator, all engine accessories, and any other component requiring service or replacement shall be easily removable. The Company shall provide or cause to be provided all specialty tools and diagnostic equipment required for maintaining the propulsion system in accordance with the special tools list.
7.1.3	Primary Propulsion Unit and Traction Motor	The propulsion system may be configured in a variety of methods dependent upon type of drive, series and/or parallel. The definition of motor in the context of this specification assumes that the device can provide or consume energy as well as provide or retard mechanical motion.
7.1.4	Energy Storage and Controller	Design and performance data shall be provided or cause to be provided by the Company. Energy storage shall be of a commercial design capable of operating in the relevant transit environment. The primary charging of the energy storage system shall be accomplished by the on-board hybrid system

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		controller and regenerative braking. Thermal management will be provided to ensure optimal life and performance of the Electrical Storage System (ESS) over the environmental operating range.
7.1.5	Hybrid System Controller (HSC)	The HSC regulates energy flow throughout hybrid system components in order to provide motive performance and accessory loads, as applicable, while maintaining critical system parameters (e.g., voltages, currents, temperatures, etc.) within specified operating ranges. The controller shall monitor and process inputs and execute outputs as appropriate to control the operation of all propulsion system components.
7.1.6	Diesel engine position	The engine portion of the system shall be in the rear of the vehicle. Engines / propulsion systems will be separated from the passenger compartment by means of a sound, vapor and fire proof wall.
7.1.7	Charge air cooling	The charge air cooling system, also referred to as after-coolers or inter-coolers, shall provide maximum air intake temperature reduction with minimal pressure loss. The charge air radiator shall be sized and positioned to meet engine specifications and requirements. The charge air radiator shall not be stacked ahead or behind the engine radiator and shall be positioned as close to the engine as possible unless integrated with the radiator. Air ducting and fittings shall be protected against heat sources and shall be configured to minimize restrictions and maintain sealing integrity.
7.1.8	Hybrid Drive System Cooling	The engine cooling system should provide coolant bypass flow to the transmission cooling system with the engine thermostats closed. Unless otherwise noted, the transmission cooler is to be the first component to see cold water from the radiator outlet. In addition, all return water piping, aside from the thermostat bypass line, is to be plumbed in after the transmission cooler.
7.1.9	Design Life	The propulsion system shall have a design life of at least 1,200,000 kilometers, subject to proper maintenance practices.
7.1.10	Power	The propulsion system shall be sized to provide enough power to enable the vehicle to meet the defined acceleration, top speed and gradeability requirements, and operate all propulsion-driven accessories, using actual road test results and computerized vehicle performance data. The propulsion system shall provide the greater of 15 HP per ton gross vehicle mass or that required to achieve and maintain 50 km/hr on a 4% up grade and 30 km/hr on an upgrade of 8% with a full vehicle load (GVWR). Values are assumed to be sustained. The Company shall provide data if there is a variance between peak performance and sustained vehicle performance.

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7.1.11	Maximum speed	The vehicle shall be capable of reaching a top speed of 90 km/hr on a straight, level road at GVWR with all accessories operating. The vehicle shall be capable of safely maintaining the vehicle speed according to the recommendations by the tire manufacturer. For actual operational use the vehicle shall be set to limit maximum vehicle speed to 80 km/hr.
7.2	**Fuel / energy system**	
7.2.1	Fuel and emission standard	The diesel-fuel portion of the hybrid propulsion system shall conform to a Euro 3 emission and fuel standard. Currently, only diesel fuel meeting a EURO 2 emission standard is available in Pakistan. EURO 2 fuel will thus be utilized in the vehicles. However, it is recognized that EURO 2 compatible engines are generally being phased out of production. In addition, the service would benefit from the potential future option of a cleaner emission standard. Thus, the vehicle is to be designed with a propulsion system capable of meeting a EURO 3 emission standard (while recognizing EURO 2 fuel will be employed in the system).
7.2.2	Fuel tank	For the diesel-fueled option, the fuel tank(s) shall be securely mounted to the vehicle to prevent movement during vehicle maneuvers, but shall be easily removed for cleaning or replacement. The tank shall have an inspection plate or removable filler neck to enhance cleaning and inspection. The tank shall be baffled internally to, prevent fuel sloshing regardless of fuel level. The diesel fuel tank shall be sized to allow at least 300 kilometers of operation prior to re-fueling.
7.2.3	Filler provision	The tank filler pipe shall be so designed as to prevent back splash when the tank reaches full, as the fuel fill nozzle shuts off. It is preferred that the fuel filler be located on the left side of the vehicle.
7.2.4	Regenerative braking system	The vehicle shall be equipped with a regenerative braking system to capture the kinetic energy from vehicle deceleration. The energy from the regenerative braking system will be stored in the vehicle's battery bank.
7.2.5	Battery size and range capacity	The battery portion of the regenerative diesel-electric hybrid system shall hold a charge capacity capable of delivering a minimum service range of 50 kilometers. The battery size is estimated at minimum 60 kWh to deliver the target electric-only range.
7.2.6	Electric motor size	The electric motor that will provide the power for electric portion of the vehicle's propulsion system shall be at least 120 kw (peak power) in size.
7.2.7	Battery pack replacement	As per the warranty obligations, the Company shall replace the battery packs on any vehicle once the capacity falls below 70% of its original capacity at full charge.
7.3	**Environmental and safety standards**	
7.3.1	Emission standards	Vehicles shall conform to the national air-pollution

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		control standards and all other local air-pollution requirements as established for the year of vehicle manufacture. Vehicles shall meet a minimum emission standard of Euro 3.
7.3.2	Noise standards	In no mode of operation shall the vehicle generate external noise levels greater than 85 dB, measured 15 meters from the centerline of the lane in which the vehicle is travelling. The interior noise at any location greater than 300 mm from an interior window or wall and 1.2 m from the floor shall not exceed 80 dB during any vehicle operating condition. In addition, the Company shall comply with the exterior noise requirements defined in Applicable Laws identified by the Employer.
7.3.3	Safety standards	The vehicle must meet all safety performance standards set for public transport vehicles under the Applicable Standards. The vehicle shall be designed and manufactured in accordance with all applicable fire safety and smoke emission regulations. These provisions shall include the use of fire-retardant/low-smoke materials, fire detection systems, firewalls, and facilitation of passenger evacuation. All materials used in the construction of the Passenger Compartment of the vehicle shall be in accordance with the Recommended Fire Safety Practices defined in FTA Docket 90, dated October 20, 1993 or later or another internationally recognized standard approved by the Employer. Materials entirely enclosed from the passenger compartment, such as insulation within the sidewalls, need not comply. In addition, smaller components and items, such as seat grabrails, switch knobs and small light lenses, shall be exempt from this requirement. Fire sensing and suppression systems shall be provided. The requirements for passenger evacuation provisions related to doors, windows, and escape hatches are defined in Section 5 - Body. Other accident and structural safety standards and tests are either in the Attachment or described and determined throughout this document.
7.4	**Transmission**	Vehicles shall be equipped with electronically controlled automatic gearboxes that are matched to the engine and other drive train components to ensure the required performance characteristics. The system gearbox shall provide smooth power transfer throughout the power range and shall not transfer any power when the gear selector is in neutral.

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7.5	**Drive shaft**	The drive shaft shall be suited to the mass and performance requirements of the vehicles and shall have lubrication fittings provided for the universal and slip joints
7.6	**Axles**	The vehicles shall have two axles. The vehicle should sustain a maximum axle load on the front axle of 7,700 Kgs. The vehicle should be capable of sustaining a maximum axle load on the rear axles of 13,000 Kgs.
7.7	**Suspension system**	All vehicles shall have air suspension with electronic self-levelling control. The suspension system shall be self-adjusting with respect to any load imbalances that may occur. The basic suspension system shall last the life of the vehicle without major overhaul or replacement. All friction parts or suspension shall be equipped with replaceable bushings and inserts. All axles should be properly aligned so the vehicle tracks accurately within its size and geometry.
7.8	**Steering**	All vehicles shall be fitted with power steering to reduce steering effort. The system can either be electrically assisted only or an electro-hydraulic system with an electric pump. Steering columns shall be adjustable to accommodate driver needs. A power steering fluid reservoir that is easily accessible for checking and filling fluid level without removing any equipment shall be provided.
7.9	**Brakes**	Vehicles are to have pneumatic anti-lock brake systems designed to ensure safe braking under normal and emergency conditions and appropriate for the operating environment. The braking system shall be balanced such that braking effort is appropriately distributed between all wheels to ensure maximum tire kilometers and equal rate of wear in front and rear break blocks. The braking system shall meet all current national and local safety standards. An emergency brake release shall also be provided to release the brakes in the event of automatic emergency brake application. The driver shall be able to manually depress and hold down the emergency brake release valve to release the brakes and maneuver the vehicle to safety. Once the driver releases the emergency brake release valve, the brakes shall engage to hold the vehicle in place. Air to the emergency brake release system shall be provided by a dedicated emergency air tank supplied by the electric pump system.
7.10	**Tires and wheels**	
7.10.1	Tires	The tires shall be capable of operational speeds up to 80 km/h with the specified axle loads. The load on any tire at full GVM shall not exceed required tire rating.

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		The tires shall have a radial ply construction. Tires shall be interchangeable between axles on the vehicle.
7.10.2	Tire to body distance	The effectiveness of the vehicle-to-platform alignment is also affected by the distance from the outer edge of the tire sidewall to the outer edge of the vehicle body. Quite often the tire sidewalls are inset to the inside of the body. The maximum inset distance from the outside edge of the tire sidewall to the outside edge of the vehicle body shall be 125 mm for the front axle and 80 mm for the middle and rear axles.
7.10.3	Wheel characteristics	All wheels on the vehicle shall be of the same size and type interchangeable between front and rear. Each shall be powder coated a color determined by the Employer during the pre- production period. The manufacturer shall furnish one full set of wheels, with one spare for every vehicle provided.
7.10.4	Splash guards/splash aprons	Splashguards / aprons made of composition or rubberized material shall be installed on the body around the periphery of the wheel. The design of the splashguards / aprons shall preclude the accumulation of dirt.
7.11	**Turning radius and tracking**	The turning radius of the vehicles is a critical parameter in determining the vehicle's ability to properly dock at stop/stations. The minimum turning radius of the vehicles is defined through the tracking movement of the front inner and outer wheels. The maximum turning radius for the outer wheels is specified as 12.0 meters.
7.12	**Air conditioning system**	The air conditioning system must be capable of maintaining an average interior temperature of between 23°C and 25°C when the ambient temperature is 45°C. The air conditioning system shall be capable of reaching the targeted interior temperature of between 23°C and 25°C within 30 minutes of vehicle operation when the ambient temperature is 45°C. The system shall continue to provide a cooling function until a cut-off temperature of 50°C. Compliance to these temperature targets will be measured at two points in the vehicle. The first location will be the second passenger row behind the driver. The second location will be the second to last passenger row at the back of the vehicle. All measurements will be taken at the height of the seat headrest. The design should be such that it minimizes electricity usage. The system's weight shall also be minimized in order to reduce impacts on axle loads and to reduce impacts on vehicle operating speeds. The system shall be designed to function for the life of the vehicle (12 years) when maintained properly.

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		The air conditioning system shall meet these performance requirements using a specified and approved by Employer refrigerant.
7.12.1	Air Flow – Passenger Area	The cooling mode of the interior climate control system shall introduce air into the vehicle at or near the ceiling height at a minimum rate of 0.7 cubic meters per passenger based on the standard configuration vehicle carrying a number of passengers equal to 1.5 times of the seated load. Airflow shall be evenly distributed throughout the vehicle, with air velocity not exceeding 30 meters per minute on any passenger. The ventilating mode shall provide air at a minimum flow rate of 0.85 cubic meters per passenger. The climate control blower motors and fans shall be designed such that their operation complies with the interior noise level requirements.
7.12.2	Air Flow - Driver's Area	The vehicle interior climate control system shall deliver at least 2.8 cubic meters of air to the operator's area when operating in the ventilating and cooling modes. Adjustable nozzles shall permit variable distribution or shutdown of the airflow. The windshield defroster unit shall meet best Practice, Windshield Defrosting Systems Performance Requirements. The defroster or interior climate control system shall maintain visibility through the operator's side window. A separate ventilation, and defroster system for the operator's area shall be provided and shall be controlled by the bus operator.
7.12.3	Air Filtration	Air shall be filtered before discharge into the passenger compartment. The filter shall meet the US American National Standards Institute / American Society of Heating and Airconditioning Engineers (ANSI/ASHRAE 52.1) requirement for 5 percent or better atmospheric dust spot efficiency, 50 percent weight arrestance, and a minimum dust holding capacity of 120 gram per 28 cmm cell. More efficient air filtration may be provided to maintain efficient heater and/or evaporator operation. Air filters shall be easily removable for service. Air filters shall be cleanable.
7.12.4	Roof Ventilators	Two roof ventilators shall be provided in the roof of the vehicle, one approximately over or just forward of the front axle and a second approximately in the rear section. The ventilators shall be easily opened and closed manually by a 1.5-meter-high passenger. If roof ventilator(s) cannot be reached by this passenger, then a tool shall be provided to allow this. When open with the vehicle in motion, these ventilators shall provide fresh air inside the vehicle. Ventilator shall cover an opening area no less than 0.28 square meters and shall be capable of being positioned as a scoop with either the leading or trailing edge open no less than 10cm, or with all four edges raised

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		simultaneously to a height of no less than 9cm. An escape hatch shall be incorporated into the roof ventilator. Roof ventilator(s) shall be sealed to prevent entry of water when closed.
7.12.5	Maintainability	Manually controlled shutoff valves in the refrigerant lines shall allow isolation of the compressor and dehydrator filter for service. To the extent practicable, self-sealing couplings utilizing O-ring seals shall be used to break and seal the refrigerant lines during removal of major components, such as the refrigerant compressor. Shut-off valves may be provided in lieu of self-sealing couplings. The condenser shall be located to efficiently transfer heat to the atmosphere and shall not ingest air warmed above the ambient temperature by the vehicle mechanical equipment, or to discharge air into any other system of the vehicle. The location of the condenser shall preclude its obstruction by wheel splash, road dirt or debris. HVAC components located within 15 centimeters of floor level shall be constructed to resist damage and corrosion. Must have high and low refrigerant pressure electronic gauges to be in the return air area.
7.12.6	Air Flow System of the Bus	The air-system of the bus shall be specially designed with option available to the driver with push button to collect all breathe air from the roof and exhaust it without recycling during passenger trip. Meanwhile fresh dust free / filtered air of equal proportion is to be pumped in from the driver's side of the bus for normal breathing of passengers.
7.12.7	Self Disinfectant System	Each bus shall be equipped with a self-disinfectant system with a liquid tank of sufficient capacity and pressure pump as option available to a driver with push button to spray the whole bus at the end of each trip. The system shall generate a mist of a suitable cholorox type non-flammable self evaporating disinfectant or any other liquid disinfectant in compliance with available international standards to fulfill the purpose in the entire bus prior to start of a trip. As a safeguard the pump system shall remain disabled while the bus speed is non-zero i.e. in a moving bus. The mist shall be used to disinfect the bus in the direction from roof to floor and its discharge points shall be placed proportionally to cover the entire bus from inside.
7.12.8	Air Curtains	Air curtains on all access doors to avoid loss / gain of heat and / or cool air when doors are frequently opened for boarding & alighting of passengers with minimum air flow of 1000 ± 50 m3/hr.
7.13	**Heating System**	The Proper Heating System will be provided in the buses for winter season.
7.14	**Maintenance and servicing**	The engine / propulsion system and battery packs shall be arranged so that accessibility for all routine maintenance is assured. No special tools, other than dollies and hoists shall be required to remove the power plant. The engine/accessories shall be removable as one complete unit.

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		The muffler, exhaust system, air cleaner, air compressor, starter, alternator, radiator, all accessories and any other component requiring service or replacement shall be easily removable and independent of the engine and transmission removal.

7.15	**Tools, software, diagnostic equipment, and manuals**	
7.15.1	Tools	The Company shall deliver or cause to be delivered to the Employer the following tools: ▪ One complete set per depot (for 12-meter vehicle type) of the dollies and cradles necessary for the handling of engines, transmissions and other heavy components requiring specialist handling equipment. ▪ One complete set per depot (for 12-meter vehicle type) of all tools required for the maintenance of the principal vehicle components.
7.15.2	Diagnostic equipment and software	The Company shall provide or cause to be provided 1 set per depot of diagnostic equipment and 1 set per depot of software that permits status evaluation of the critical vehicle components. This equipment and software shall indicate the status of the specified equipment and shall be accompanied by clear information on any required remedial actions. The diagnostic equipment shall provide information on the following vehicle components: ▪ Engine unit ▪ Battery packs ▪ Gearbox ▪ System electronics. ▪ Air Suspension system ▪ Wheel and Axle Alignment
7.15.3	Guidance and instruction manuals	The Company shall provide or cause to be provided a complete set of vehicle guidance and instructional manuals. These manuals shall as a minimum cover the following topics: ▪ Description of all parts and components, including instructions for assembly and disassembly ▪ Description of maintenance and diagnostic procedures ▪ Troubleshooting recommendations and procedures ▪ contact details for emergencies, maintenance support, and parts procurement The manuals shall be provided in correct and proper English. At least four (4) color printed copies shall be provided. At least three (3) digital copies on three (3) USBs shall also be provided.
7.16	**Performance documentation**	The Company shall furnish or cause to be furnished the following performance graphs as part of the bid documentation:

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		▪ Engine Speed vs. Road Speed ▪ Horsepower vs. Engine Speed ▪ Specific Fuel Consumption Chart (for diesel-fuel operation) ▪ Electricity Consumption Chart (for electric operation) ▪ Vehicle Speed vs. Grade (both loaded and unloaded)

Section 8: Electrical		
8.1	**Internal lighting**	The light source shall be located to minimize windshield glare, with distribution of the light focused primarily on the passengers' reading plane while casting enough light onto the advertising display. The lighting system may be designed to form part of or the entire air distribution duct. The lens material shall be translucent polycarbonate. Lenses shall be designed to effectively "mask" the light source. Lenses shall be sealed to inhibit incursion of dust and insects yet be easily removable for service. Access panels shall be provided to allow servicing of components located behind light panels. If necessary, the entire light fixture shall be hinged. When the driver master switch is in the "run" or "night/run" mode, the first light module on each side of the vehicle shall automatically close or dim when the front door is in the closed position and illuminate when the door is opened. When in "Off" or "On" all lights shall be also on or off.
8.1.1	Passenger area	Energy-efficient lighting such as LED shall be installed in the cover area on both sides and along the total length of the vehicle and shall not occupied on the minimum interior headroom. The lenses shall be made of polycarbonate material and be sealed to prevent the entrance of dust and insects but shall be easily opened for cleaning and service of ballast and lamp.
8.1.2	Driver's compartment	A driver's compartment lamp, with a full-range dimmer, shall be mounted to illuminate the entire driver's area.
8.1.3	Interior door lighting	All door threshold areas shall be adequately illuminated with Light-Emitting Diode (LED) type lights activated only when the door is open. The lights shall be shielded to prevent light from directly shining into passenger or driver's eyes. Light fixtures shall be totally enclosed, splash proof, designed to provide ease of cleaning as well as lamp and housing removal and shall not be easily removable by passengers.
8.2	**Exterior lighting**	All exterior lights shall be designed to prevent entry and accumulation of moisture or dust. Lamps, lenses and fixtures shall be interchangeable to the extent

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		practicable. Two hazard lamps at the rear of the vehicle shall be visible from behind when the engine service doors are opened. Light lenses shall be designed and located to prevent damage when running the vehicle through an automatic vehicle washer. Commercially available LED-type lamps shall be utilized at all exterior lamp locations. LED lamps shall be potted type and designed to last the life of the vehicle.
8.2.1	Headlamps	The headlamps shall utilize halogen/LED technology. The headlamps shall have a sealed beam unit. They should be designed for ease of replacement. Headlamps shall incorporate a daytime running light feature.
8.2.2	Exterior door lighting	An exterior white LED light shall be provided at each door to adequately illuminate the outside area when the doors open. These lamps shall illuminate the street surface to a level of no less than 11 lux for a distance of 90 cm outward from the outboard edge of the door threshold.
8.2.3	Indicator lights, reversing lights, marker lights and reflectors	The indicator lights, reversing lights, marker lights, and reflectors shall have the following characteristics: ▪ LED lights shall be preferred where appropriate. ▪ Direction indicator lights shall be visible from front, rear and sides of the vehicle, with additional side units fitted if necessary. ▪ The vehicle shall be fitted with reversing lights, which shall also engage an audible reversing signal, clearly audible in the vicinity of the vehicle with the engine running. The reversing signal shall be audible buzzer or human voice along with audible buzzer can also be provided. Marker lights shall be installed, one on each upper corner of the body. ▪ Reflectors at the front, rear and on the each side of the vehicle shall be provided. Reflectors shall be installed on both sides of the vehicle.
8.3	**Battery and battery compartment**	
8.3.1	Battery	Battery and starter cable shall be properly bracketed, sized and fastened to carry the maximum loads that may be encountered. Each battery shall have a purchase date no more than one year from the date of release for shipment to the Employer.
8.3.2	Master battery switch	A master battery switch shall be provided near the batteries in the battery compartment, mounted to prevent corrosion, for complete disconnection of the electrical system. The master switch shall be capable of carrying and interrupting the total circuit load.

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8.3.3	Battery compartment	The battery compartment shall prevent accumulation of debris on top of the batteries and shall be vented and self-draining. It shall be accessible only from the outside of the vehicle. All components within the battery compartment, and the compartment itself, shall be protected from damage or corrosion from the electrolyte. The inside surface of the battery compartment's access doors shall be electrically insulated, as required, to prevent the battery terminals from shorting on the door if the door is damaged in an accident or if a battery comes loose. The battery compartment temperature should not exceed manufacturers specification. The batteries shall be securely mounted on a stainless steel or equivalent tray that can accommodate the size and weight of the batteries. The battery tray, if applicable, shall pull out easily and properly support the batteries while they are being serviced. The tray shall allow each battery cell to be easily serviced. A locking device shall retain the battery tray to the stowed position. If not located in the engine compartment, the same fire-resistant properties must apply to the battery compartment. No sparking devices should be located within the battery box.
8.4	**Wiring and cabling**	The wiring and cabling on the vehicle shall be color-coded for ease of repair and maintenance as well as safety.
8.5	**Stop request system**	The vehicle shall be fitted with a stop request system to allow passengers to request for the vehicles to stop at a certain stop/ station. Stop-request buttons shall be provided on the hand-hold bars on both sides of the vehicles. The placement of the stop-request buttons shall be such that no passenger is more than 1.2 meters away from a button. An indicator light showing the deployment of the stop request will be visible both in the passenger area and in the driver's compartment. The deployment of the stop request button will also be accompanied by a chime noise.

Section 9: Intelligent Transportation System (ITS)		
9.1	**Overview of ITS system**	The ITS equipment will consist of components that will be procured and installed by the Company. It includes: ▪ Automatic Vehicle Location (AVL) system ▪ Vehicle performance monitoring ▪ Fare Validation Equipment ▪ Passenger Door Count System ▪ Vehicle weight ▪ Digital Video Recorder (DVR) ▪ Vehicle WiFi system

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		▪ UHF/VHF/Wifi Communication System ▪ External variable messaging display ▪ Internal variable messaging display ▪ Internal infotainment display ▪ Audio system ▪ Door opening / door synchronization unit ▪ Driver display unit and on-board CCTV cameras. ▪ Driver panic alarm ▪ USB ports ▪ Traffic signal priority equipment (space provision for future addition only).
9.2	**Vehicle performance monitoring**	Vehicle performance monitoring is an essential element for effective fleet management and driver control. The Company will monitor and record the most pertinent performance statistics of the major mechanical and electrical components. It is essential that all the vehicles are equipped with performance monitoring that will provide information of, at least, the following: ▪ Speed (wheel based and Tachometer based) ▪ Fuel used and fuel levels ▪ Engine speed (revolutions) and engine hours ▪ Vehicle distance ▪ Tachograph performance ▪ Handling information ▪ Engine coolant temperature ▪ Ambient air temperature ▪ Status of doors ▪ Time/date ▪ Brake pressures ▪ Parking brake status ▪ Gears and alternator status ▪ Direction indicators ▪ Vehicle weight. Data outputs from the monitoring equipment shall be recorded onto the Vehicle Logic Unit (VLU) for later compilation and analysis. The Company shall confirm or cause to be confirmed the required interfaces and applicable standards during the final design approval process. The monitoring system must comply with an open interface standard for information exchange typically used for Fleet Management Systems (FMS). For these purposes the system must comply with Bus-FMS-Standards (www.bus-fms-standard.com). The Company shall provide or cause to be provided a detailed interface specification for this interface. The monitoring system shall be able to interface with the AVL unit.

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9.3	**Vehicle weight**	The Company shall measure and record or cause to be measured and recorded the vehicle weight at different points of time. The data recorded will include the total weight of the vehicle. Preferably, this data will also include the distribution of the weight, and in particular, will include measurement of the axle loads. There will be at least two general uses for the data collected. First, this data shall be correlated to GPS position to estimate the number of passengers on board the vehicle at different segments of the route. The weight values shall thus be used to estimate the number of passengers boarding and alighting at each stop. Second, the axle load data will help ensure compliance to the legal load-carrying limits of the vehicle. Data from the vehicle weight device shall be recorded onto the Vehicle Logic Unit (VLU) and made available through the Bus-FMS interface.
9.4	**Vehicle Logit Unit (VLU)**	The VLU is the core computer server for most of the data and ITS functions on-board the vehicle. The VLU shall be placed in a location that allows effective connectivity to the various ITS components. The location shall also ensure that the VLU is physically well-protected. The VLU must be compatible to function with all other equipment installed. The Company shall provide or cause to be provided a description of the technical specifications (hardware, interfaces, and operating system) of the VLU and interface specifications allowing the integration of the unit with: ▪ Vehicle performance monitoring ▪ Communications unit ▪ GPS positioning data ▪ Digital Video Recorder ▪ External variable messaging display ▪ Internal variable messaging display ▪ Internal infotainment display ▪ Audio system ▪ Panic alarm
9.5	**Communications Unit**	The Communications Unit will control the flow of communications and information between the vehicle and the control center. This includes both real-time data exchange as well as stored information for later downloads at the depots. The communication system will also permit verbal communications between the driver and the control center. The verbal communications system will be designed so that the driver may communicate hands-free of the device, but still capable of hearing vehicle cabin sound.

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		The Communications Unit is comprised of a router and all antennae required for mobile (GSM/GPRS/LTE/3G/4G) connectivity, WiFi connectivity, and GPS positioning. A separate cable between the GPS antenna and the VLU shall be included. The Communications Unit will provide connectivity through 3G and 4G mobile networks. The Communications Unit will provide at least two slots for different SIM cards, and thus enabling the option of multiple simultaneous 3G/4G connections. Due to concerns regarding the reliability of the existing 3G and 4G mobile networks, the provision of communications via UHF/VHF radio bandwidths should also be provided by the Company. The Communication Unit may also provide the passenger WiFi system. Alternatively, the passenger WiFi could also be provided through a separate receiver and router (see 9.8 below).
9.6	**Driver Data Terminal (DDT)**	The Driver Data Terminal (DDT) is a computing device that enables the driver to visually understand vehicle performance and parameters. The device shall be equipped with a color LCD touchscreen display designed for operation in a public transport environment and shall be managed and controlled by the VLU.
9.7	**Digital Video Recorder (DVR)**	All CCTV footage shall be recorded onboard by the Digital Video Recorder (DVR). The DVR shall be connected to the VLU for management purposes. Video footage on the DVR will be downloadable at the depot if required. DVR must have capability to store recording for seven days.
9.8	**Vehicle Wi-Fi**	The vehicle should have the provision to provide free Wi-Fi to passengers. The Company will procure and install the vehicle WiFi system. The Wi-Fi equipment will include a 4G receiver and router. The minimum download speed for the Wi-Fi system within the vehicle shall be at least 3.0 megabits per second (Mbps). The Company will be responsible for fitting and installing the WiFi receiver and router into the vehicle. The fitting of the equipment will be provided in a manner to ensure WiFi connectivity in all passenger sections of the vehicle. The Company will provide all necessary wiring and cabling for the system. The passenger WiFi may also be provided by a receiver and router integrated with the vehicle Communication Unit (see 9.5 above).

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9.9	**External variable messaging display**	An external variable messaging display shall be provided on the top front of the vehicle. The external variable messaging display will indicate three possible types of information: 1.) Route destination; 2.) Name/Number of route; and 3.) Emergency messages. The external display shall utilize high brightness, wide viewing angle, amber LED technology. LED brightness shall be controlled by photocells installed as part of the sign. The controller shall communicate with the on-vehicle VLU. It shall also be possible to override messages directly from the control center under emergency conditions. The display shall be capable of showing upper and lower case characters with proportional fonts. The display shall be capable of showing double stroke width (bold) fonts. The front face of the display shall be designed to minimize glare. The display shall have the functionality to display messages in the following modes, set through configuration data: ▪ A single, non-scrolling or changing message ▪ A right to left scrolling message ▪ An alternating (between two states) message. The LEDs shall have a minimum service life of 80,000 hours in their installed configuration. The system shall be designed for continuous operation without the need to manually "reboot" computers or devices. Visible messages shall begin playing within one (1) second of being triggered. External variable message sign shall be capable of displaying the message in Urdu and English.
9.10	**Internal variable messaging display**	Two internal variable messaging displays shall be provided, one for the front portion and one for the rear portion of the vehicle. The displays will provide the following types of information: ▪ Name of next stop/station ▪ Route name and route map ▪ Route destination ▪ Time. The onboard displays shall utilize high brightness, wide viewing angle, liquid crystal display (LCD) technology. The display will be readable for a distance of up to 8 meters. Messages on the displays shall be legible during any time of day and from any designated passenger position on the bus. The proposed location of the displays will be noted in the

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		tenderer's vehicle layout drawing. During the pre-production stage, the Employer will specify the font type, color of the background, color of the lettering, and the use of any branding on the displays. The displays will interface with and be controlled by a Vehicle Logic Unit. Internal variable message sign shall be capable of displaying the message in Urdu and English.
9.11	**Internal infotainment display**	Minimum Two (2) infotainment displays shall be provided inside the vehicle. The infotainment displays will show full color video entertainment, news, public service announcements, and advertisements. The displays will be placed to be viewable for most passengers. The displays shall utilize high brightness, wide viewing angle, LCD technology. The display resolution shall be at least 1280 x 720. The displays will be enclosed in a tamperproof casing with toughened glass. The surface of the displays shall be coated with an anti-glare layer to enable viewing during any time of the day. Content for the infotainment displays may be stored on its own that seamless video streaming is ensured at all times. Standard video signal input ports will be provided.
9.12	**Audio system**	The audio system shall be capable of both digital audio messages programmed into the Vehicle Logical Unit (VLU) as well as public address messages from the driver. The audio system will be programmable in relation to the vehicle position in order to automatically deliver specific stop information. Upon arriving at a stop, the digitally-recorded message will announce the stop name as well as the name of possible transfer routes. A digital announcement will also be made noting that the doors are opening. Upon departing from a stop, a digitally-recorded message will note the doors are closing. The digital announcement will then note the route name, final destination, and the next stop Messages from the driver on the public address system will only occur to announce special messages or situations, such as reasons for delays or emergency instructions. The digital recording of the messages will be the responsibility of the Employer. The volume of the announcements shall be adjustable to a standard level through configuration data. The system shall include an automatic gain control to automatically and independently adjust interior and exterior volumes depending on interior and exterior ambient noise levels.

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		The audio system will be controlled by the VLU and the input ports must therefore be able to interface with the VLU.
9.13	**Door opening and synchronization unit**	The opening and closing of the vehicle's doors (both sides) shall be synchronized with the opening and closing of the station doors (for probable future use). A single switch/button on the driver console may actuate vehicle doors and station doors simultaneously.
9.14	**Driver displays and on-board CCTV cameras**	Closed-circuit television (CCTV) cameras shall be provided for vehicle surveillance to ensure passenger security and vehicle safety. The vehicle shall be fitted with at least four (4) CCTV cameras. One camera will cover the front curb-side door and the driver compartment. One camera will cover the front passenger area and the median-side doorways. One camera will cover the rear passenger area. One camera will face behind the vehicle, and thus will assist the driver when reversing. Output from the cameras will be shown through a visual display on or near the dashboard. The driver shall have a visual digital display of the area behind the vehicle whenever the vehicle is in reverse gear. The video footage from these cameras shall also be stored on-board on the digital video recorder (DVR). The Company will provide or cause to be provided all cabling and connectivity between the cameras and the DVR. In normal conditions, the video footage will be downloaded when the vehicle enters the depot. The Company shall ensure that the system is designed in such a way so the data can be readily downloaded after the vehicle enters the depot. In emergency situations, the system shall allow streaming of onboard footage to the control center. The video from the cameras will also be connected to the Vehicle Wifi Mesh Network for relay to OCC in real time. All cameras will be integrated into the interior layout of the vehicle in a visually appealing manner. The precise location of the cameras will be determined in the pre-production phase with approval from the Employer. Both the cameras and the dashboard displays should ideally be highly visible to the passengers to give assurances that their security is being surveilled. The CCTV cameras shall be connected to the IP network.

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9.15	**Driver panic alarm**	The panic alarm will be utilized in circumstances in which the driver is not able to utilize the normal communications system. The panic alarm shall be located discretely in the driver's compartment. The location should be such that it is known to the driver but not clearly evident to passengers. The Company shall provide or cause to be provided the button and the wiring required to connect it to the VLU.
9.16	**USB ports for passenger devices**	The provision of USB ports in the passenger seating area allows customers to charge their personal devices while travelling on public transport. This service helps further encourage ridership. The preferable configuration would be a port provided behind each seat or at the vehicle interior sidewall for seats without another seat directly in front.
9.17	**Traffic signal priority equipment (future option)**	The Company will ensure that space is available inside the vehicle for the deployment of traffic signal equipment. This deployment would likely involve the placement of a transducer device, which would be fitted onto the vehicle and used to activate the traffic signal equipment at a particular intersection.
9.18	**Automatic Vehicle Location (AVL) system**	All vehicles in the system will be tracked by an Automated Vehicle Location (AVL) system utilizing Global Positioning System (GPS) technology. Data from this system will form the basis of compensation to the Company, and therefore, this represents a critical data collection feature for the overall operation of the system. The AVL system also provides instructions to the drivers to maintain the correct headway between vehicles. The AVL system will provide real-time, automatic information to drivers on the correct speed in order to maintain the headway. The system will clearly display on the driver console the target speed in real-time to maintain the headway. The AVL system thus encompasses all hardware and software components to achieve real-time positioning control of the vehicle. The AVL unit will be fitted into the driver console in an ergonomic manner. The AVL unit will also be integrated with the Vehicle Logic Unit (VLU) allowing it to: ▪ Relay vehicle performance data to the control centre ▪ Receive GPS positioning data ▪ Relay video to the control centre ▪ Control the content on all messaging and infotainment displays ▪ Feed the audio system with audio ▪ Relay panic messages to the control centre. The AVL system of the entire fleet will be monitored from the operational control center of the service. The AVL and GPS system shall be based on an open software standard.

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9.19	**UHF/VHF/Wifi Mesh system**	Due to concerns over the reliability of mobile telephone networks, the vehicles will also be fitted with a communications system based on UHF/VHF/Wifi Mesh radio bandwidth technology.

Section 10: Bus Prototype Testing		
10.1	**Overview of Bus Prototype Test**	As explained in the Schedule of Delivery, a Prototype Bus will be produced after the approval of detailed design. Certain tests will be conducted with this Prototype bus in order to ascertain the performance of bus. A minimum list of these tests are given in the section below, however the Company can proposed any additional tests deemed necessary. Also the Employer can ask for a few additional tests while finalizing these Prototype Testing.
10.2	**Bus Basic Compliance Tests**	The objective of this test is to go through the initial screening process to make sure that the bus complies with all the basic requirements
10.3	**Bus Physical Inspection**	The objective of this test is to carry out of physical inspection of the bus both from external and internal sides to assess the overall condition of the bus
10.4	**Safety Test – Double Lane Change (Obstacle Avoidance Test)**	The objective of this test is to determine handling and stability of the bus by measuring speed through a double lane change test.
10.5	**Performance Tests**	
10.5.1	Acceleration, Grade ability and Top Speed Test	The objective of this test is to determine the acceleration, gradeability, and top speed capabilities of the bus. Best is to have instrumentation set to read acceleration directly and to trace a speed curve. Gradeability can then be calculated.
10.5.2	Bus Braking Performance Test	The objective of this test is to provide braking performance data.
10.6	**Structural Integrity Tests**	
10.6.1	Structural Shakedown Test	The objective of this test is to determine certain static characteristics (e.g., bus floor deflection, permanent structural deformation, etc.) under static loading conditions.
10.6.2	Structural Distortion	The objective of this test is to observe the operation of the bus subsystems when the bus is placed in a longitudinal twist simulating operation over a curb or through a pothole.
10.6.3	Static Towing Test	The objective of this test is to determine the characteristics of the bus towing mechanisms under static loading conditions.
10.6.4	Dynamic Towing Test	The objective of this test is to verify the integrity of the towing fixtures and determine the feasibility of towing the bus under manufacturer specified procedures.
10.6.5	Jacking Test	The objective of this test is to inspect for damage due to the deflated tire and determine the feasibility of jacking the bus with a portable hydraulic jack to a height sufficient to replace a deflated tire.
10.6.7	Hoisting Test	The objective of this test is to determine possible damage or deformation caused by the jack/stands.
10.6.8	Rollover Test	The objective of this test is to measure

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		crashworthiness - the ability of the vehicle to protect its passengers in the event of a crash. Simulation based results for this test will be accepted.
10.7	**Noise Tests**	
10.7.1	Interior Noise and Vibration Test	The objective of these tests is to measure and record interior noise levels and check for audible vibration under various operating conditions.
10.7.2	Exterior Noise Test	The objective of this test is to measure and record exterior noise levels when a bus is operated under various conditions.

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FIGURES

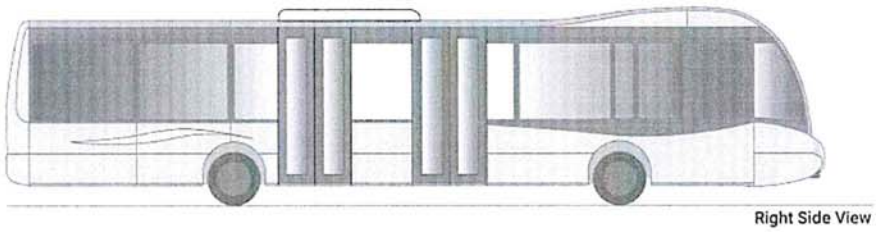

Figure 1. Example of a modern body shape with a curved windscreen for a 12-meter vehicle

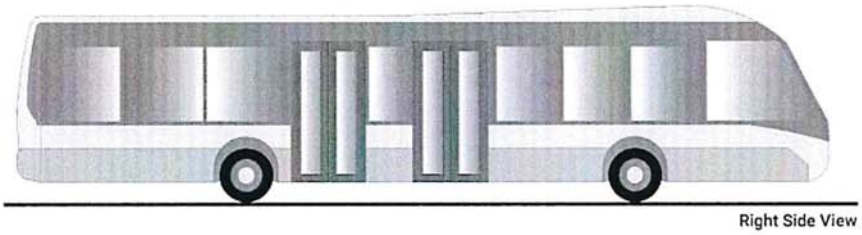

Figure 2. Example of a modern body shape with a slanted windscreen for a 12-meter vehicle

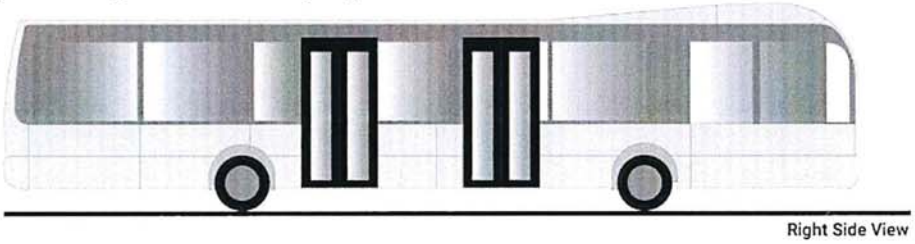

Figure 3. Example of a modern body shape with a rounded roof-line for a 12-meter vehicle

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Figure 4. Example of a manual flap-type boarding bridge to be utilized on the curb-side doorways of the 12-meter vehicles.

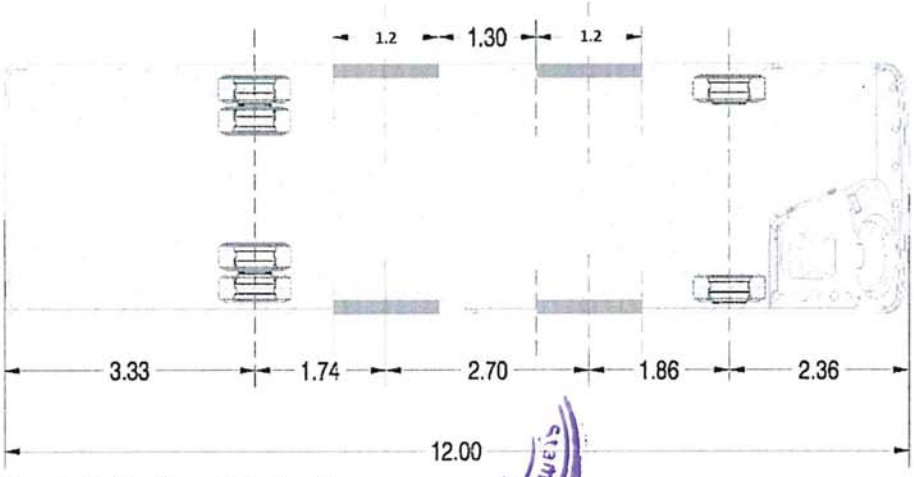

Figure 5. A 12-m bus vehicle layout.

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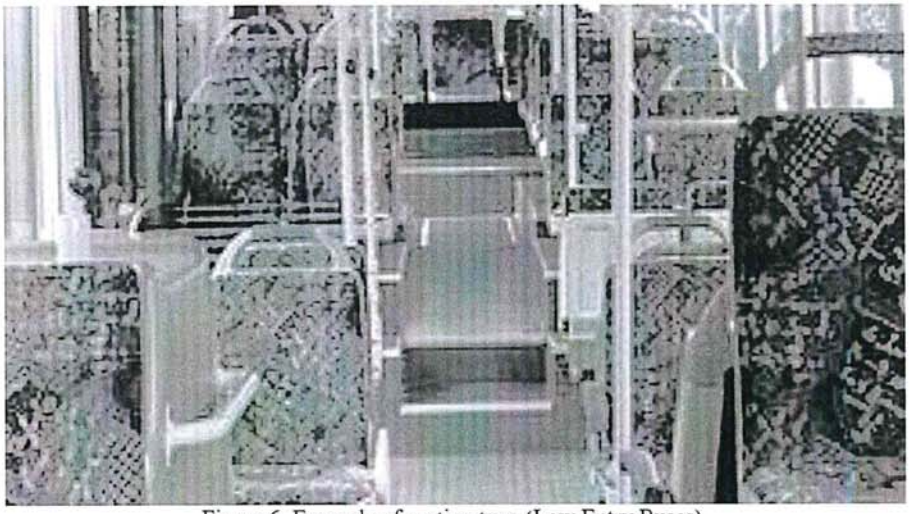

Figure 6. Example of seating type (Low Entry Buses).

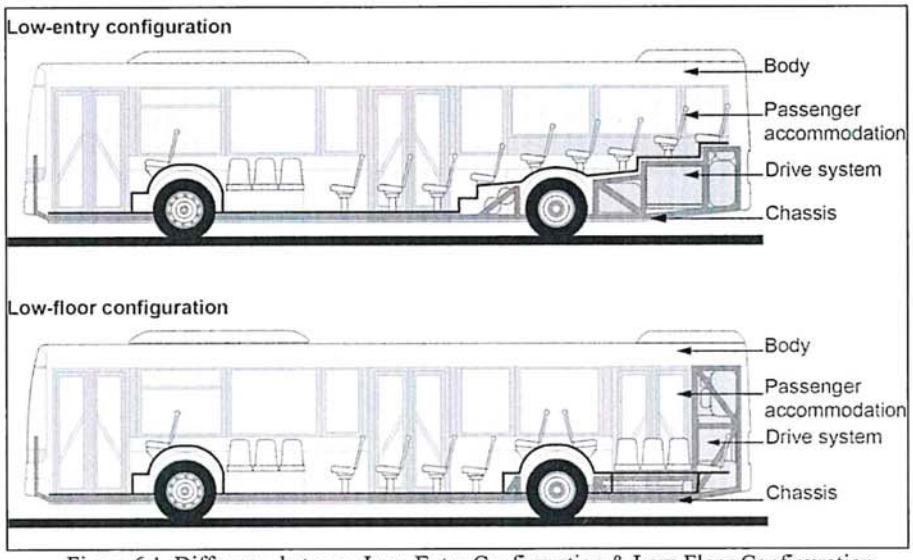

Figure 6.1. Difference between Low-Entry Configuration & Low-Floor Configuration

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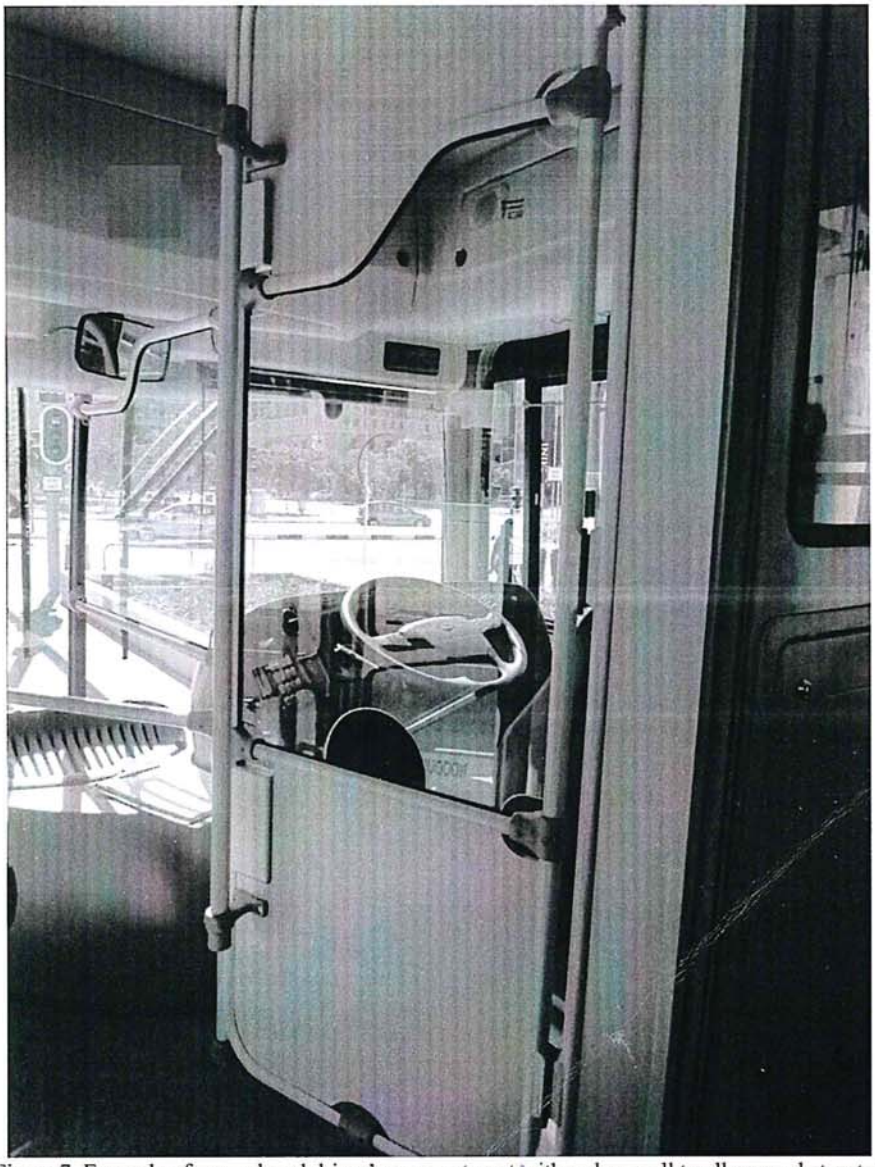

Figure 7. Example of an enclosed driver's compartment with a clear wall to allow unobstructed peripheral vision and the ability to communicate directly with the conductors.

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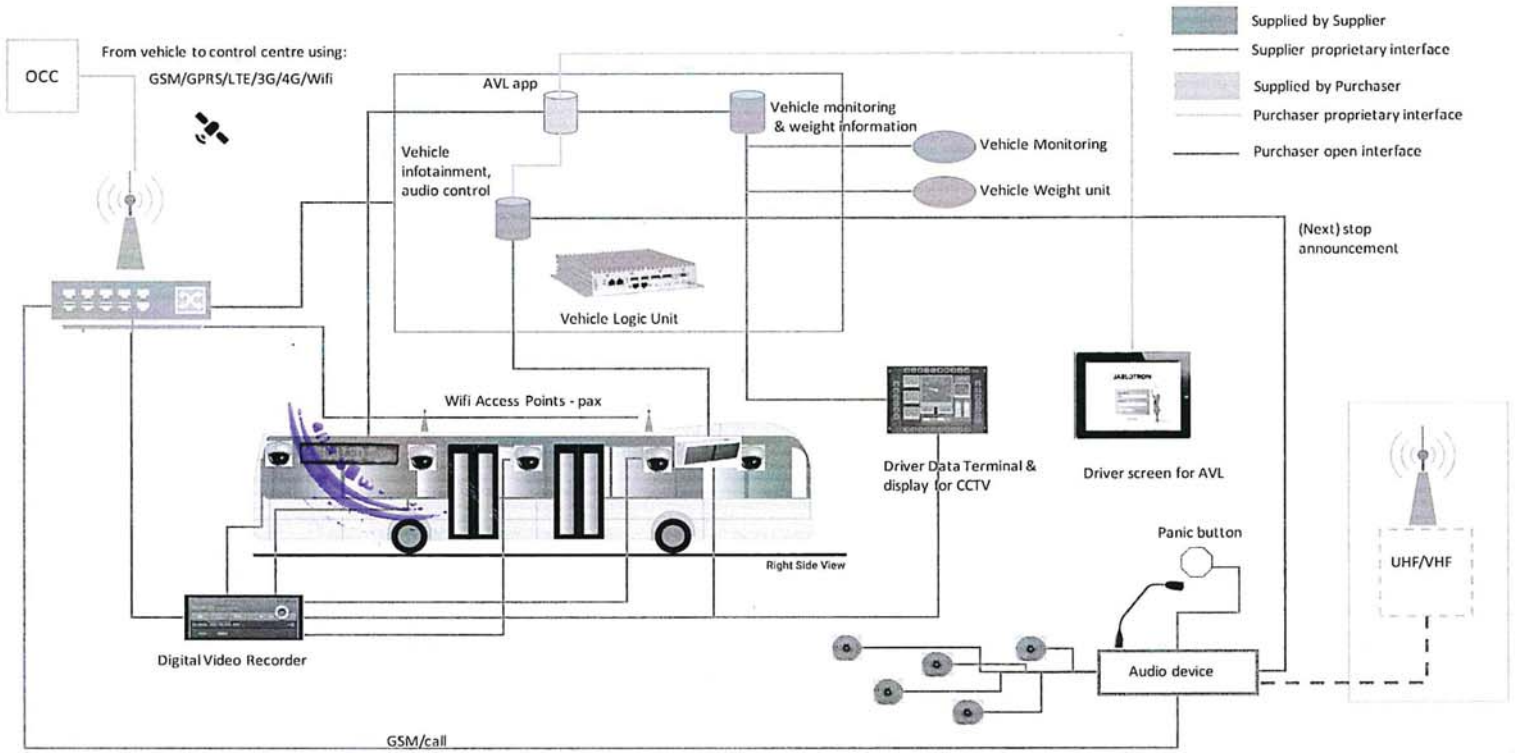
Figure 8. vehicle ITS



Overview of system.

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Vehicle Specifications – 12m Buses
Volume II

LIST OF SPARE PARTS TO BE PROVIDED BY THE COMPANY

The Company shall provide all replacement parts and supplies for all maintenance issues resulting from normal wear and tear as well as items requiring scheduled replacements throughout the term of the Agreement.

There shall be no vehicles unavailable for services due to the lack of spare parts at the depot site.

The table below is the minimum list of spare parts and supplies to be provided at all times during the Term of the Agreement. Spare parts and supplies listed in the table below are to be provided for each type of buses.

Table 1. Spare parts package to be provided

Part description	Quantity to be provided at the end of the Term
Oil filter	60
Diesel engine oil (liters)	150
Fuel filter	15
Water trap filter	15
Set tappet cover gaskets	15
Oil separator	30
V-belt	15
Air filter	15
Compressed air drier cartridge	15
Poly V-belt	15
Poly V-belt tensioner	15
Starter, alternator, and vehicle battery	6
Full battery pack for electric propulsion system	3
Regenerative braking system assembly	3
Disc brake pads	15
Touch-up paint for all colors used on the vehicle (quantity in liters)	15
Full windscreen assembly	3
Side window glass unit	3
Head lamp assembly, including globes (2 lamps per set)	6
Rear brake light / indicator light assembly, including globes (2 assemblies per set, left and right)	6
Exterior wing mirrors (arms and mirrors, left and right mirrors per set)	10
Wiper blades (2 per set)	30
Interior light globes	15
Full seat assembly	6
Back and bottom seat cushion set	6
Floor cover material (quantity in square meters)	6
Door assembly (including doors, valves, switches)	3
Interior partition wall / advertising unit	3
Wheel unit	3
Engine cooling system unit	3
Transmission system / gearbox unit	3
Air conditioning unit	3
Vehicle Logic Unit (VLU)	3
Driver Data Terminal (DDT)	3
Digital Video Recorder (DVR)	3

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Door opening and closing synchronization unit	3
CCTV cameras	15
Interior variable messaging display unit	3
Infotainment display unit	3
Spare Wheel	1 per Bus

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LIST OF TOOLS TO BE PROVIDED

Sets of tools to be provided per depot

Table 2. Minimum list of tools to be provided

Description	Quantity to be Provided
Air chisel	1
Air drill	2
Air grinder	2
Air gauge kit – brake system	1
Air riveter	2
Alternator and starter test bench	1
Battery charger	1
Battery load tester	1
Bench grinder	2
Bench vice	2
Bottle jacks	2
CO2-welder	1
Compression tester	1
Creepers	2
Drill press	1
Electric drill	1
Electric grinder	1
Electric shear	1
Electric steel cutter	1
Extension leads	2
Floor material welder	1
Gas welder	1
Headlight tester/adjuster	1
Heavy duty socket set (multiple sizes, as required)	1
Hydrometer	2
Impact screw driver	1
Impact wrench, large size	1
Impact wrench, medium size	1
Impact wrench, small size	2
King pin press	1
Lead lights	6
Magnetic base and gauge	1
Metal sheet bender	1
Micrometer set	1
Multimeter	2
Paint heat kit	1
Polisher	1
Porta power	1
Portable arc welder	1
Portable gas welder	1
Power bar	2
Power jack (60 ton)	2
Puller set	1
Radiator pressure tester (diesel-fuel option only)	2
Refractometer – antifreeze tester	2
Sander	1
Spray gun	1
Torque wrench 0-60 Nm	1
Torque wrench 201-450 Nm	1

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Torque wrench 451-800 Nm	2
Torque wrench 61-200 Nm	1
Transmission jack (1000 kg)	1
Tire hammer	1
Tire stripping and fitting kit	1
Vernier set	1
Wheel stopper blocks	6

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EXHIBIT 1 – ROUTE DESCRIPTION & LIST OF BUS STOPS ENROUTE

The following table describes the alignment of seven routes that have been proposed by the consultant as public transport routes for Karachi and one route for Larkana. These routes cover a total distance of more than 200 km. These are designed to complement BRT Projects which are to be implemented in Karachi soon. The routes connect various localities of the city with the City Centre.

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(A) TABLE 1 PROPOSED PUBLIC TRANSPORT ROUTES IN KARACHI

Route ID	Route Alignment	Route Length
Route 1 (Karachi)	**Model Colony to tower:** via Malir Halt, Colony Gate, Nata Khan Bridge, Drigg Road Station, PAF Base Faisal, Laal Kothi, Karsaz, Nursery, FTC, Regent Plaza, JPMC, Cantt Station, Metropole, Regal Chowk and Aram Bagh	29.5 Km
Route 2 (Karachi)	**North Karachi to Indus Hospital:** via Nagan Chowrangi, Shafiq Morr, Sohrab Goth, Gulshan Chowrangi, NIPA, Johar Morr, COD, Drigg Road Station, Colony Gate, Shah Faisal Colony, Singer Chowrangi and Landhi Road	32.9 Km
Route 3 (Karachi)	**Nagan Chowrangi to Singer Chowrangi:** via Anda Morr, North Nazimabad Town, KDA Chowrangi, Nazimabad Town, Liaqatabad 10 Number, Eissa Nagri, Civic Centre, National Stadium, Karsaz, Nursery, FTC, Korangi Road, KPT Interchange and Shan Chowrangi	33 Km
Route 4 (Karachi)	**North Karachi to Dock Yard:** via New Karachi - University Road Link Road, Motorway M-9, Al-Asif Square, Ayesha Manzil, Federal B Area, Liaqatabad 10 Number, Lalu Khait, Guru Mandir, Society Chowrangi, Empress Market, Sindh High Court, Art Council, I.I. Chundrigarh Road and Tower	30.4 Km
Route 5 (Karachi)	**Surjani Town to Masroor:** via New Karachi, Shafiq Morr, KMDC, Ziauddin Chowrangi, KDA Chowrangi, Musa Colony, Manghopir, SITE Area and Gulbai	28.2 Km
Route 6 (Karachi)	**Gulshan-e-Bihar Orangi to Singer Chowrangi:** via Orangi Town, Banaras, Paposh Nagar, SITE Area, Golimar, Garden, PIB Colony, Jail Chowrangi, Bahadurabad, Baloch Colony, Mehmoodabad, Manzoor Colony, DHA Phase I, KPT Interchange and Shan Chowrangi	29.6 Km
Route 7 (Karachi)	**Mosamiyat to Baldia Town:** via Gulzar-e-Hijri, Gulshan-e-Iqbal, Federal B Area, North Nazimabad, Orangi Town and Qaddafi Colony	28.9 Km
Route 8 (Larkana)	**Larkana Bus Terminal to Larkana Junction:** via Indus Highway, 7 Naka Bridge, Gharib Nagar, Naudero Chowk, Shahi Bazaar, Ansari Mohalla and Station Road	5.97 Km

Route 1 – Karachi

Route 1 is 29.5 kilometers long and covers one of the busiest arterials of the city i.e. Shahrah-e-Faisal and links it with M.A. Jinnah Road. It connects the residential areas of Model Colony and Malir with the commercial area of Shahra-e-Faisal, JPMC, and Central Business District of the city. It also joins the residential area of Chanesar Halt and Mehmoodabad with Saddar. The bus depot suggested for this route is the Mehran Depot having an open site with an area of 9.8 acres, located in Moinabad, Model Colony with Latitude of 24°53'44.60"N and longitude of 67°11'1.71"E. The place currently used by Sindh Rangers to park their patrol vehicles and is otherwise a potential location to turn into a bus depot. If the proposed Route 1 (from Model Colony to Tower) is considered operational, the buses running along it can be terminated at Mehran depot. Proposed route is shown in Figure 1 whereas location of Mehran Depot is shown in Figure 2. List of Bus stops of Route 1 is given in Table 2.

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Figure 1 Proposed Route 1 - Karachi

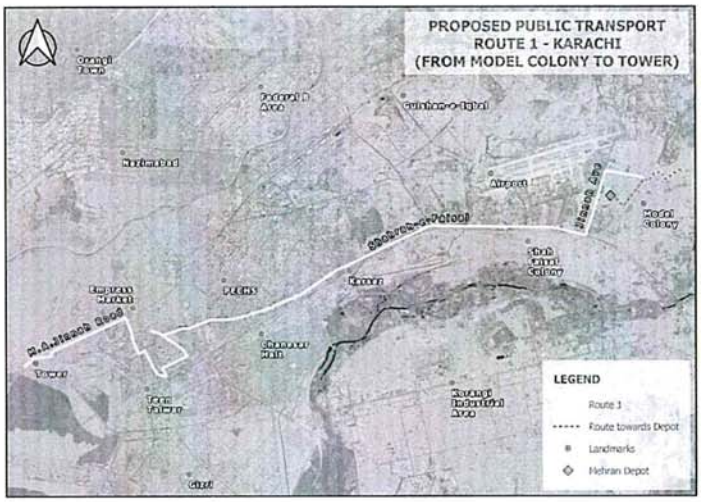

Figure 2 Mehran Depot

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Table 2: List of Bus Stops for Route 1

S. No	Bus Stops A	Bus Stops B
1	1_1 A Khokrapar no 1 Bus Stop	1_1 B Khokrapar no 1 Bus Stop
2	1_2 A Saudabad Square Bus Stop	1_2 B Saudabad Square Bus Stop
3	1_3 A RCD Ground Bus Stop	1_3 B RCD Ground Bus Stop
4	1_4 A Dak Khana Bus Stop	1_4 B Dak Khana Bus Stop
5	1_5 A Awan Hotel Bus Stop	1_5 B Awan Hotel Bus Stop
6	1_6 A Lee Broast Bus Stop	1_6 B Lee Broast Bus Stop
7	1_7 A Model Colony Bus Stop	1_7 B Model Colony Bus Stop
8	1_8 A Moinabad Bus Stop	1_8 B Moinabad Bus Stop
9	1_9 A Shah Faisal Town Bus Stop	1_9 B Shah Faisal Town Bus Stop
10	1_10 A Malir Halt Bus Stop	1_10 B Malir Halt Bus Stop
11	1_11 A Wireless Gate Bus Stop	1_11 B Wireless Gate Bus Stop
12	1_12 A Star Gate Bus Stop	1_12 B Star Gate Bus Stop
13	1_13 A Colony Gate Bus Stop	1_13 B Colony Gate Bus Stop
14	1_14 A Nata Khan Bus Stop	1_14 B Nata Khan Bus Stop
15	1_15 A Drig Road Bus Station	1_15 B Drig Road Bus Station
16	1_16 A PAF Bus Stop	1_16 B PAF Bus Stop
17	1_17 A Karsaz Road Bus Stop	1_17 B Karsaz Road Bus Stop
18	1_18 A Awami Markaz Bus Stop	1_18 B Awami Markaz Bus Stop
19	1_19 A Baloch Colony Bus Stop	1_19 B Baloch Colony Bus Stop
20	1_20 A Laal Kothi Bus Stop	1_20 B Laal Kothi Bus Stop
21	1_21 A Nursery Bus Stop	1_21 B Nursery Bus Stop
22	1_22 A FTC Bus Stop	1_22 B FTC Bus Stop
23	1_23 A Gora Kabristan Bus Stop	1_23 B Gora Kabristan Bus Stop
24	1_24 A Regent Plaza Bus Stop	1_24 B Regent Plaza Bus Stop
25	1_25 A School Road Bus Stop	1_25 B School Road Bus Stop
26	1_26 A Blue Lines Bus Stop	1_26 B Blue Lines Bus Stop
27	1_27 A Claremont Road Bus Stop	1_27 B Claremont Road Bus Stop
28	1_28 A Metropole Hotel Bus Stop	1_28 B Metropole Hotel Bus Stop
29	1_29 A Zainab Market Bus Stop	1_29 B Zainab Market Bus Stop
30	1_30 A Regal Chowk Bus Stop	1_30 B Regal Chowk Bus Stop
31	1_31 A Court Road Bus Stop	1_31 B Court Road Bus Stop
32	1_32 A Burnes Road Bus Stop	1_32 B Burnes Road Bus Stop
33	1_33 A NED Campus Bus Stop	1_33 Pakistan Chowk Bus Stop
34	1_34 A Pakistan Chowk Bus Stop	1_34 B Taiyabiyah Jamat Khana Bus Stop
35	1_35 A Ottaram Road Bus Stop	1_35 B Sindh university Bus Stop
36	1_36 A I.I.Chundrigarh Road Bus Stop	1_36 B I.I.Chundrigarh Road Bus Stop
37	1_37 A Tower Bus stop	1_37 B Tower Bus stop
38	1_38 A KPT Bus Stop	1_38 B KPT Bus Stop

Route 2 – Karachi

Route 2 is 32.9 kilometres long and passes through Rashid Minhas Road, Shahrah-e-Faisal, Korangi-Shah Faisal Expressway and Landhi Road. It links the residential area of North Karachi with the industrial areas of New Karachi and FB Area. It also connects the former areas with the residential areas of Gulshan-e-Iqbal and Shah Faisal Colony, terminating at the Korangi Industrial Area. The suggested depot for this route is the UP Morr Depot which has an area of about 6.7 acres and located in North Karachi with longitude of 24°58'37.16"N and longitude of 67°4'12.37"E. This depot can be allocated to Route 2, Route 3 and Route 4, since the routes have one of their

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terminals, is quite close to the proposed site. The place is currently empty and can be turned into an operational bus depot. List of Bus stops of Route 2 is given in Table 3.

Figure 3 Proposed Route 2 - Karachi

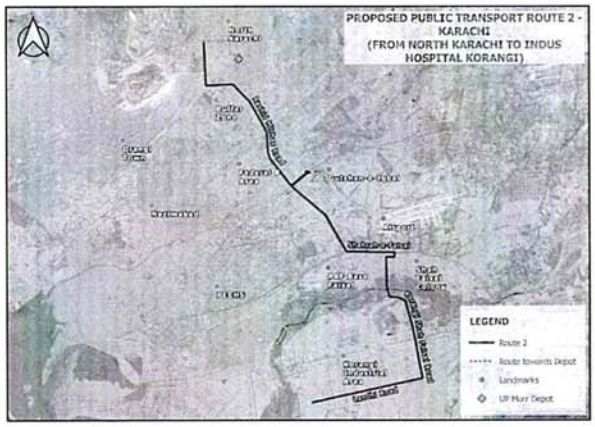

Figure 4 UP Morr Depot

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Table 3: List of Bus Stops for Route 2

S. No	Bus Stops A	Bus Stops B
1	2_1 A Sector 8 Bus Stop	2_1 B Sector 8 Bus Stop
2	2_2 A Circular Bus Stop	2_2 B Circular Bus Stop
3	2_3 A Sector 9 Bus stop	2_3 B Sector 9 Bus stop
4	2_4 A Anda Mor Bus Stop	2_4 B Anda Mor Bus Stop
5	2_5 A Nagan Chowrangi Bus Stop	2_5 B Nagan Chowrangi Bus Stop
6	2_6 A Shafique Mor Bus Stop	2_6 B Shafique Mor Bus Stop
7	2_7 A 2_D Bus Stop	2_7 B 2_D Bus Stop
8	2_8 A Sohrab Goth Bus Stop	2_8 B Sohrab Goth Bus Stop
9	2_9 A UBL Ground Bus Stop	2_9 B UBL Ground Bus Stop
10	2_10 A Moti Mehal Bus Stop	2_10 B Moti Mehal Bus Stop
11	2_11 A Gulshan Chowrangi Bus Stop	2_11 B Gulshan Chowrangi Bus Stop
12	2_12 A Nipa Bus Stop	2_12 B Nipa Bus Stop
13	2_13 A University Road Bus Stop	2_13 B Sir Syed University Bus Stop
14	2_14 A Aladin Park Bus Stop	2_14 B Aladin Park Bus Stop
15	2_15 A Johar Morr Bus Stop	2_15 B Johar Morr Bus Stop
16	2_16 A Millinium Mall Bus Stop	2_16 B Millinium Mall Bus Stop
17	2_17 A COD Bus Stop	2_17 B COD Bus Stop
18	2_18 A Drig Road Station Bus Stop	2_18 B Drig Road Station Bus Stop
19	2_19 A Colony Gate Bus Stop	2_19 B Colony Gate Bus Stop
20	2_20 A Al Shifa Clinic Bus Stop	2_20 A Al Shifa Clinic Bus Stop
21	2_21 A Korangi Shah Faisal Road Bus Stop	2_21 B Korangi Shah Faisal Road Bus Stop
22	2_22 A Singer Chowrangi Bus Stop	2_22 B Singer Chowrangi Bus Stop
23	2_23 A Khaddi Bus Stop	2_23 B Khaddi Bus Stop
24	2_24 A Korangi 5 Bus Stop	2_24 B Korangi 5 Bus Stop
25	2_25 A Al-Khidmat Bus Stop	2_25 B Al-Khidmat Bus Stop
26	2_26 A Baldia Hospital Bus Stop	2_26 B Baldia Hospital Bus Stop
27	2_27 A Korangi no 2 Bus Stop	2_27 B Korangi no 2 Bus Stop
28	2_28 A Charka Goth Bus Stop	2_28 B Charka Goth Bus Stop
29	2_29 A Nasir Jump Bus Stop	2_29 B Nasir Jump Bus Stop
30	2_30 A Korangi Crossin Bus Stop	2_30 B Korangi Crossin Bus Stop

Route 3 – Karachi

Route 3 is 33 kilometers long covering Shahrah-e-Noor Jahan, Sir Shah Muhammad Suleiman Road, Shahrah-e-Faisal and Main Korangi Road. It joins the residential areas of North Nazimabad Town, Nazimabad Town, Liaqatabad and Gulshan-e-Iqbal 13-D with the commercial areas across Shahrah-e-Faisal and DHA Phase I & II. It further extends to Korangi Industrial Area, passing by the residential area of Mehmoodabad. The suggested depot for this route is same as that of Route 2 & 4 i.e. UP Morr Depot located in North Karachi with longitude of 24°58'37.16"N and longitude of 67°4'12.37"E shown in Figure 6. List of Bus stops of Route 2 is given in Table 4.

Employer's Initials

Company's Initials

Figure 5 Proposed Route 3 - Karachi

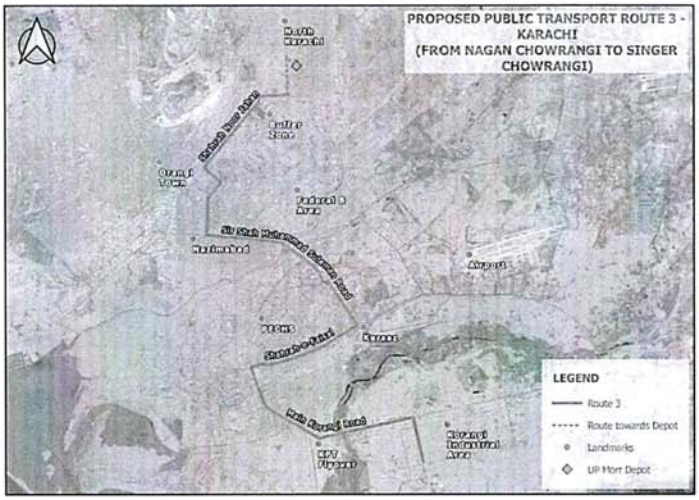


Figure 6 UP Morr Depot

Employer's Initials

Company's Initials

Table 4: List of Bus Stops for Route 3

S. No	Bus Stops A	Bus Stops B
1	3_1 A Nagan Chowrangi Bus Stop	3_1 B Nagan Chowrangi Bus Stop
2	3_2 A Baab-e-Rehmant Mosque Bus Stop	3_2 B Baab-e-Rehmant Mosque Bus Stop
3	3_3 A Anda Mor Bus Stop	3_3 B Anda Mor Bus Stop
4	3_4 A Masjid e Khizra Bus Stop	3_4 B Masjid e Khizra Bus Stop
5	3_5 A Block T Bus Stop	3_5 B Block T Bus Stop
S. No	**Bus Stops A**	**Bus Stops B**
6	3_6 A Shahra-e-Noor Jahan Bus Stop	3_6 B Shahra-e-Noor Jahan Bus Stop
7	3_7 A Shipowner's college	3_7 B Shipowner's college
8	3_8 A Aslam Market Bus Stop	3_8 B Aslam Market Bus Stop
9	3_9 A Laal Kothi Bus Stop	3_9 B Laal Kothi Bus Stop
10	3_10 A Asghar Ali Shah Stadium Bus Stop	3_10 B Asghar Ali Shah Stadium Bus Stop
11	3_11 A Zaheer Abbas Road Bus stop	3_11 B Zaheer Abbas Road Bus stop
12	3_12 A KDA Chowrangi Bus Stop	3_12 B KDA Chowrangi Bus Stop
13	3_13 A Board Office Bus Stop	3_13 B Board Office Bus Stop
14	3_14 A Baqai Hospital Bus Stop	3_14 B Baqai Hospital Bus Stop
15	3_15 A Nazimabad Petrol Pump Bus Stop	3_15 B Nazimabad Petrol Pump Bus Stop
16	3_16 A Gujjar Nala Bus Stop	3_16 B Gujjar Nala Bus Stop
17	3_17 A Liaqutabad Bus Stop	3_17 B Liaqutabad Bus Stop
18	3_18 A Hussainabad Bus Stop	3_18 B Hussainabad Bus Stop
19	3_19 A Eisa Nagri Bus Stop	3_19 B Eisa Nagri Bus Stop
20	3_20 A Civic Center Bus Stop	3_20 B Civic Center Bus Stop
21	3_21 A National Stadium Bus Stop	3_21 B A National Stadium Bus Stop
22	3_21 A Nust Bus Stop	3_21 B Nust Bus Stop
23	3_22 A Tipu Sultan Road Bus Stop	3_22 B Tipu Sultan Road Bus Stop
24	3_23 A Karsaz Road Bus Stop	3_23 B Karsaz Road Bus Stop
25	3_24 A Awami Markaz Bus Stop	3_24 B Awami Markaz Bus Stop
26	3_25 A Shaheed-e-Millat Road Bus Stop	3_25 B Shaheed-e-Millat Road Bus Stop
27	3_26 A Nursery Bus Stop	3_26 B Nursery Bus Stop
28	3_27 A FTC Bus Stop	3_27 B FTC Bus Stop
29	3_28 A Kala Pul Bus Stop	3_28 B Kala Pul Bus Stop
30	3_29 A NMC Bus Stop	3_29 B NMC Bus Stop
31	3_30 A South Circle Bus Stop	3_30 B South Circle Bus Stop
32	3_31 A Defence Mor Bus Stop	3_31 B Defence Mor Bus Stop
33	3_32 A Khayaban-e-Itehad Bus Stop	3_32 B Khayaban-e-Itehad Bus Stop
34	3_33 A KPT Intechange Bus Stop	3_33 B KPT Intechange Bus Stop
35	3_34 A Brooks Chowrangi Bus Stop	3_34 B Brooks Chowrangi Bus Stop
36	3_35 A Shan Chowrangi Bus Stop	3_35 B Shan Chowrangi Bus Stop
37	3_36 A Shah Muhammad Road	3_36 B Shah Muhammad Road
38	3_37 A Mehran Town	3_37 B Mehran Town
39	3_38 A Nasir Jump Bus Stop	3_38 B Nasir Jump Bus Stop

Route 4 – Karachi

The 30.4 -kilometre-long Route 4 covers a stretch of New Karachi - University Road Link Road, Motorway M-9, Shahrah-e-Pakistan, New M.A. Jinnah Road and I.I. Chundrigarh Road. It connects the residential areas of Gulzar-e-Hijri, Al-Asif Square, Federal B Area, and Liaqatabad with the commercial area of Saddar, passing by I.I. Chundrigarh Road and ending at the Dock Yard. The suggested depot for this route is same as that of Route 2 & 3 i.e. UP Morr Depot located

Employer's Initials

Company's Initials

in North Karachi with longitude of 24°58'37.16"N and longitude of 67°4'12.37"E shown in Figure 8. List of Bus stops of Route 2 is given in Table 5.

Figure 7 Proposed Route 4 - Karachi

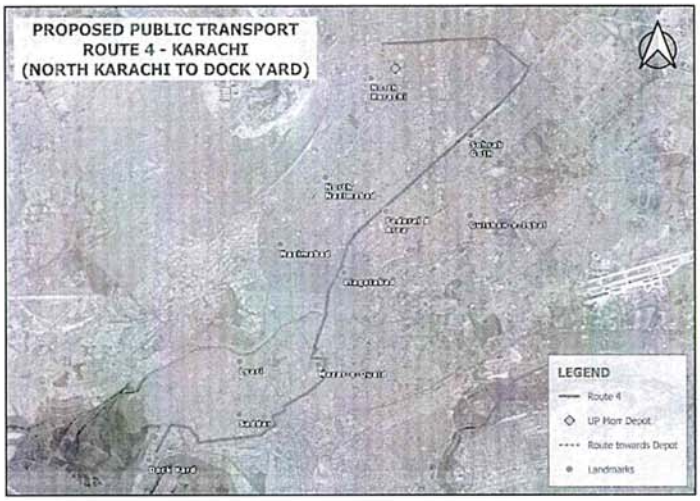


Figure 8 KTC Depot

Employer's Initials

Company's Initials

Table 5: List of Bus Stops for Route 4

S. No	Bus Stops A	Bus Stops B
1	4_0 B Power House Bus Stop	4_0 A Power House Bus Stop
2	4_1 A 5 Number Bus Stop	4_1 B 5 Number Bus StopBus Stop
3	4_2 A Saba Cinema Roundabout Buse Stop	4_2 B Saba Cinema Roundabout Buse Stop
4	4_3 A Sukhia Goth Bus Stop	4_3 B Sukhia Goth Bus Stop
5	4_4 A New Karachi University Road Bus Stop	4_4 B New Karachi University Road Bus Stop
6	4_5 A Daewoo Bus Terminal	4_5 B Daewoo Bus Terminal
7	4_6 A Sector 15 A Bus Stop	4_6 B Sector 15 A Bus Stop
8	4_7 A Abul Hasan Aspahani Road Bus Stop	4_7 B Abdul Hassan Aspahani Road
9	4_8 A Ancholi Bus Stop	4_8 B Ancholi Bus Stop
10	4_9 A Water Pump Bus Stop	4_9 B Water Pump Bus Stop
11	4_10 A Naseerabad Bus Stop	4_10 B Naseerabad Bus Stop
12	4_11 A Ayesha Manzil Bus Stop	4_11 B Ayesha Manzil Bus Stop
13	4_12 A Madni Masjid Bus Stop	4_12 B Madni Masjid Bus Stop
14	4_13 A Karimabad Bus Stop	4_13 Karimabad Bus Stop
15	4_14 A Liaqutabad no 10 Bus Stop	4_14 B Liaqutabad no 10 Bus Stop
16	4_15 A Apwa College Bus Stop	4_15 B Apwa College Bus Stop
17	4_16 A Laloo Khet Bus Stop	4_16 B Laloo Khet Bus Stop
18	4_17 A Baloch Masjid Bus Stop	4_17 B Baloch Masjid Bus Stop
19	4_18 A Teen Hatti Bus Stop	4_18 B Teen Hatti Bus Stop
20	4_19 A Moti Masjid Bus Stop	4_19 B Moti Masjid Bus Stop
21	4_20 A Jahangir Road Quarters Bus Stop	4_20 B Jahangir Quarters Bus Stop
22	4_21 A Guru Mandir Bus Stop	4_21 B Guru Mandir Bus Stop
23	4_22 A M.A Jinnah Road Bus Stop	4_22 B M.A Jinnah Road Bus Stop
24	4_23 A Mazar-e-Quaid Bus Stop	4_23 B Mazar-e-Quaid Bus Stop
25	4_24 A Jutland Bus Stop	4_24 B Jutland Bus Stop
26	4_25 A Jutland St 2 Bus Stop	4_25 Jutland St 2 Bus Stop
27	4_26 A Basharat Park Bus Stop	4_26 B Basharat Park Bus Stop
28	4_27 A Jacob Lines Bus Stop	4_27 B Jacob Lines Bus Stop
29	4_28 A Empress Market Bus Stop	4_28 B Empress Market Bus Stop
30	4_29 A Saddar Center Bus Stop	4_29 B Sadar Center Bus Stop
31	4_30 A Jama Cloth Market Bus Stop	4_30 B Jama Cloth Market Bus Stop
32	4_31 A Passport Office Bus Stop	4_31 B Passport Office Bus Stop
33	4_32 A Press Club Bus Stop	4_32 B Press Club Bus Stop
34	4_33 A Fountain Chowk Bus Stop	4_33 B Fountain Chowk Bus Stop
35	4_34 A Shaheen Complex Bus Stop	4_34 B Shaheen Complex Bus Stop
36	4_35 A Jung Press Bus Stop	4_35 B Jung Press Bus Stop
37	4_36 A Pakistan Chowk Bus Stop	4_36 B Pakistan Chowk Bus Stop
38	4_37 A HBL Plaza Bus Stop	4_37 B HBL Plaza Bus Stop
S. No	**Bus Stops A**	**Bus Stops B**
39	4_38 A UBL Plaza Bus Stop	4_38 B UBL Plaza Bus Stop
40	4_39 A State Bank Bus Stop	4_39 B State Bank Bus Stop
41	4_40 A Tower Bus Stop	4_40 B Tower Bus Stop
42	4_41 A Jama Masjid Nakhuda Bus Stop	4_41 B Jama Masjid Nakhuda Bus Stop
43	4_42 A Kharadar Bus Stop	4_42 B Kharadar Bus Stop
44	4_43 A Mari Pur Road Bus Stop	4_43 B Maripur Road Bus Stop
45	4_44 A West Wharf Bus Stop	4_44 B West Wharf Bus Stop

Employer's Initials

Company's Initials

Route 5 – Karachi

Route 5 is 28.2 kilometers in length and covers Godhra Road, Allama Rasheed Turabi Road and Estate Avenue. It joins the residential areas of Surjani Town, New Karachi, Buffer Zone, Musa Colony and Nazimabad with the SITE Industrial Area and the commercial area of Sher Shah, culminating at Mauripur. The porposed depot for this route is situated in Sector 7-C of Surjani Town with longitude of 25° 1'53.73"N and longitude of 67° 4'10.04"E and has an area of 4.5 acres. The site is near to the head point of proposed route 5 (from Surjani Town to Masroor) and can be turned into a potential bus depot if the route becomes operational.

Figure 9 Proposed Route 5 - Karachi

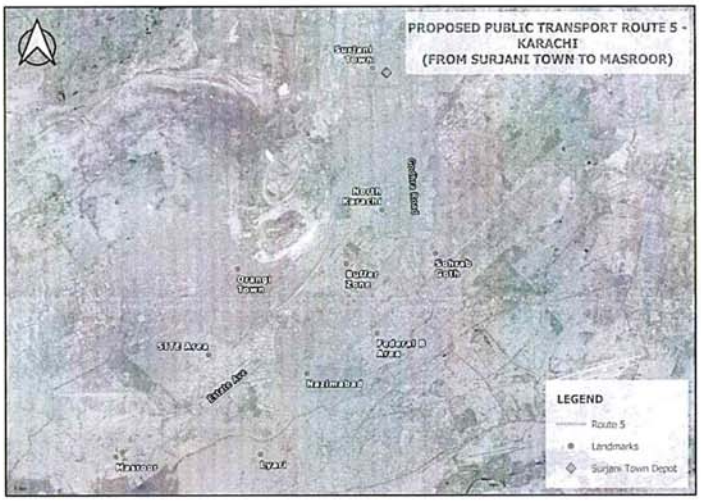


Figure 10 Surjani Town Depot

Employer's Initials

Company's Initials

Table 6: List of Bus Stops for Route 5

S. No	Bus Stops A	Bus Stops B
1	5_1 A Abdullah Mor Bus Stop	5_1 B Abdullah Mor Bus Stop
2	5_2 A Jamia Masjid Syeda Fatima R.A	5_2 B Jamia Masjid Syeda Fatima R.A
3	5_3 A Yateem Khana Bus Stop	5_3 B Yateem Khana Bus Stop
4	5_4 A Bismillah Bakery Bus Stop	5_4 B Bismillah Bakery Bus Stop
5	5_5 A Lal Market Bus Stop	5_5 B Lal Market Bus Stop
6	5_6 A Sindhi Hotel Bus Stop	5_6 B Sindhi Hotel Bus Stop
7	5_7 A Puliya Bus Stop	5_7 B Puliya Bus Stop
8	5_8 A 5 Number Bus Stop	5_8 B 5 Number Bus Stop
9	5_9 A Charhai Bus Stop	5_9 B Charhai Bus Stop
10	5_10 A Nala Bus Stop	5_10 B Nala Bus Stop
11	5_11 A North Lane Hospital Bus Stop	5_11 B North Lane Hospital Bus Stop
12	5_12 A Petrol Pump Bus Stop	5_12 B Petrol Pump Bus Stop
13	5_13 A Daewoo FastEX North Karachi	5_13 B Daewoo FastEX North Karachi
14	5_14 A Shafique Mor Bus Stop	5_14 A Shafique Mor Bus Stop
15	5_15 A Abid Hasan's Studio Bus Stop	5_15 B Abid Hasan's Studio Bus Stop
16	5_16 A KBR Park Bus Stop	5_16 B KBR Park Bus Stop
17	5_17 A Masjid Bait-ul-Mukarram Bus Stop	5_17 B Masjid Bait-ul-Mukarram Bus Stop
18	5_18 A Farhan Square Bus Stop	5_18 A Farhan Square Bus Stop
19	5_19 A Green House Bus Stop	5_19 B Green House
20	5_20 A Dental College N Block Bus Stop	5_20 B Dental College N Block Bus Stop
21	5_21 A Niaz Munzil Bus Stop	5_21 B Niaz Munzil Bus Stop
22	5_22 A Zafar House Bus Stop	5_22 B Zafar House Bus Stop
23	5_23 A Landi Kotal Fruit Market	5_23 B Landi Kotal Fruit Market
24	5_24 A Ziauddin University Bus Stop	5_B 24 Ziauddin University Bus Stop
S. No	**Bus Stops A**	**Bus Stops B**
25	5_25 A Munnawar Hospital Bus Stop	25 B Munnawar Hospital Bus Stop
26	5_26 A Allama Rasheed Road Bus Stop	5_26 B Allama Rasheed Road Bus Stop
27	5_27 A Ziauddin Chowrangi Bus Stop	5_27 B Ziauddin Chowrangi Bus Stop
28	5_28 A Generation School Bus Stop	5_28 B Generation School Bus Stop
29	5_29 A KDA Chowrangi Bus Stop	5_29 B KDA Chowrangi Bus Stop
30	5_30 A Health Care Hospital Bus Stop	5_30 B Health Care Hospital Bus Stop
31	5_31 A Board Office Bus Stop	5_31 B Board Office Bus Stop
32	5_32 A Baqai Hospital Bus Stop	5_32 B Baqai Hospital Bus Stop
33	5_33 A Nazimabad Petrol Pump Bus Stop	5_33 B Nazimabad Petrol Pump Bus Stop
34	5_34 A Chota Maidan Bus Stop	5_34 B Chota Maidan Bus Stop
35	5_35 A Habib Bank Chowrangi Bus Stop	5_35 B Habib Bank Chowrangi Bus Stop
36	5_36 A Irshad Qadri Road Bus Stop	5_36 B Irshad Qadri Road Bus Stop
37	5_37 A Hascol Pump Bus Stop	5_37 B Hascol Pump Bus Stop
38	5_38 A Siemens Chowrangi Bus Stop	5_38 B Siemens Chowrangi Bus Stop
39	5_39 A Mustafa MAsjid Bus Stop	5_39 B Mustafa Masjid Bus Stop
40	5_40 A Naseer Autos Bus Stop	5_40 B Naseer Autos Bus Stop
41	5_41 A Ghani Chowrangi Bus Stop	5_41 B Ghani Chowrangi Bus Stop
42	5_42 A Mini Bus Stop	5_42 B Mini Bus Stop
43	5_43 A Hub Chowki Road Bus Stop	5_43 B Hub Chowki Road Bus Stop
44	5_44 A PSO Pump Bus Stop	5_44 B PSO Pump Bus Stop
45	5_45 A GulBai Bus Stop	5_45 B Gulbai Bus Stop
46	5_46 A Maripur Road Bus Stop	5_46 B Maripur Road Bus stop
47	5_47 A Truck Stand Bus Stop	5_47 B Truck Stand Bus Stop

Employer's Initials

Company's Initials

Route 6 – Karachi

Route 6 is a 29.7-kilometer-long route passing along Manghopir road, Nishtar Road, Shaheed-e-Millat Road and Main Korangi Road. It connects the residential areas of Orangi Town and Banaras with SITE Industrial Area. It further extends to the residential areas of Golimar, Garden, and PECHS, linking them with Korangi Industrial Area. An old KTC depot which is currently using as scrap yard in Gulshan-e-Bihar with longitude of 24°58'48.05"N and longitude of 66°59'27.37"E with an area of almost 3 acres is suggested as the bus depot for route 6. The proposed Route 6 (From Gulshan-e-Bihar Orangi to Singer Chowrangi) is less than a kilometer away from the site, and hence it can be transformed into a bus depot if the route becomes operational.

Figure 11 Proposed Route 6 - Karachi

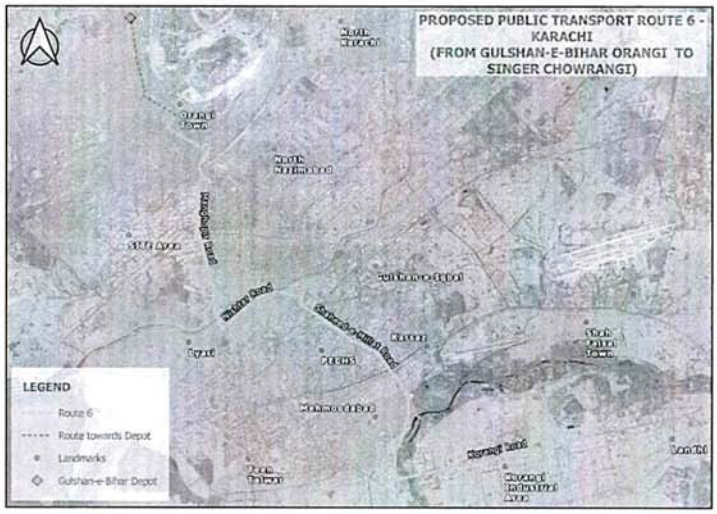


Figure 12 Gulshan-e-Bihar Depot

Employer's Initials

Company's Initials

Table 7: List of Bus Stops for Route 6

S. No	Bus Stops A	Bus Stops B
1	6_1 A Singer Chowrangi Bus Stop	6_1 B Singer Chowrangi Bus Stop
2	6_2 A Awami Colony Bus Stop	6_2 B Awami Colony Bus Stop
3	6_3 A Bilal Chowrangi Bus Stop	6_3 B Bilal Chowrangi Bus Stop
4	6_4 A Shan Chorangi Bus Stop	6_4 B Shan Chorangi Bus Stop
5	6_5 A Brooks Chorangi Bus Stop	6_5 B Brooks Chorangi Bus Stop
6	6_A Vita Chorangi Bus Stop	6_6 B Vita Chorangi Bus Stop
7	6_7 A Centre Point Building	6_7 B Centre Point Building
8	6_8 A KPT Bus Stop	6_8 B KPT Bus Stop
9	6_9 A UNIVERSITY Bus Stop	6_9 B UNIVERSITY Bus Stop
10	6_10 A Madina Stop Bus Stop	6_10 B Madina Stop Bus Stop
11	6_11 A Punjab Colony Bus Stop	6_11 B Punjab Colony Bus Stop
12	6_12 A Eid Gah Chowk Bus Stop	6_12 B Eid Gah Chowk Bus Stop
13	6_13 A Manzoor Colony Bus Stop	6_13 B Manzoor Colony Bus Stop
14	6_14 A City School Bus Stop	6_14 B City School Bus Stop
15	6_15 A Baloch Colony	6_15 B Baloch Colony
16	6_16 A Masjid Al-Burhan	6_16 B Masjid Al-Burhan
17	6_17 A Isobal Bus Stop	6_17 B Isobal Bus Stop
18	6_18 A GreenLand Nursery Bus Stop	6_18 B GreenLand Nursery Bus Stop
19	6_19 A Saima Fine Tower	6_19 B Saima Fine Tower
20	6_20 A Naheed Super Market Bus Stop	6_20 B Naheed Super Market Bus Stop
21	6_21 A Medicare Bus Stop	6_21 B Medicare Bus Stop
22	6_22 A Jail Chorangi Bus Stop	6_22 B Jail Chorangi Bus Stop
23	6_23 A Hyderabad Colony Bus Stop	6_23 B Hyderabad Colony Bus Stop
24	6_24 A PIB Bus stop	6_24 B PIB Bus stop
25	6_25 A KMC Ground Bus Stop	6_25 B KMC Ground bus stop
26	6_26 A Mubarak Masjid Bus Stop	6_26 B Mubarak Masjid Bus Stop
27	6_27 A Teenhatti Bus Stop	6_27 B Teenhatti Bus Stop
28	6_28 A Lasbella Bus Stop	6_28 B Lasbella Bus Stop
29	6_29 A Lasbella 1 Bus Stop	6_29 B Lasbella 1 Bus Stop
30	6_30 A Nauman Masjid Bus Stop	6_30 Nauman Masjid Bus Stop
31	6_A 31 Haideri Masjid Bus Stop	6_B 31 Haideri Masjid Bus Stop
32	6_32 A Abu Ubaida Masjid Bus Stop	6_32 B Abu Ubaida Masjid Bus Stop
33	6_33 A Dargah Juman Shah Bus Stop	6_33 B Dargah Juman Shah Bus Stop
34	6_34 A Orange Street Bus Stop	6_34 B Orange Street Bus Stop
35	6_35 A Mangophir Road Bus Stop	6_35 B Mangophir Road Bus Stop
36	6_36 A White Rose School Bus Stop	6_36 B White Rose School Bus Stop
S. No	**Bus Stops A**	**Bus Stops B**
37	6_37 A Bismillah Hotel Bus Stop	6_37 B Bismillah Hotel Bus Stop
38	6_38 A Noor Jama Masjid Bus Stop	6_38 B Noor Jama Masjid Bus Stop
39	6_39 A Naurus Chowrangi Bus Stop	6_39 B Naurus Chowrangi Bus Stop
40	6_40 A Habib Bank Chowrangi Bus Stop	6_40 B Habib Bank Chowrangi Bus Stop
41	6_41 A Fakhrudin Valika Road Bus Stop	6_41 B Fakhrudin Valika Road Bus Stop
42	6_42 A Regent Rice Mill Bus Stop	6_42 B Regent Rice Mill Bus Stop
43	6_43 A Bacha Khan Flyover Bus Stop	6_43 B Bacha Khan Flyover Bus Stop

Employer's Initials

Consultant's Initials

44	6_44 A Rehman General Bus Stop	6_44 B Rehman General Bus Stop
45	6_45 A Qasba Colony Bus Stop	6_45 B Qasba Colony Bus Stop
46	6_46 A Qadafi Road Bus Stop	6_46 B Qadafi Road Bus Stop
47	6_47 A Qadafi Chowk Bus Stop	6_47 B Qadafi Chowk Bus Stop
48	6_48 A Banaras National Hospital Bus Stop	6_48 B Banaras National Hospital Bus Stop
49	6_49 A Orangi Town Post Office Bus Stop	6_49 B Orangi Town Post Office Bus Stop
50	6_50 A Shell Petrol Pump Bus Stop	6_50 B Shell Petrol Pump Bus Stop

Route 7 – Karachi

Route 7 is a 28.4-kilometer-long route passing along Suparco Road, Hijri Road, Allama Shabbir Usmani Road, Shahrah-e-Jahangir, Qaddafi Road and Sabri Chowk Road. It connects the residential areas of Gulzar-e-Hijri, Gulshan-e-Iqbal, Gulshan-e-Shamim, North Nazimabad, Orangi Town and Baldia Town with one another. Gulshan e Ghazi depot which is currently an empty plot in Gulshan-e-Ghazi with longitude of 24°55'57.62"N and longitude of 66°58'5.46"E with an area of almost 5.13 acres is suggested as the bus depot for route 7. The proposed Route 7 is passing in front of this site, and hence it can be used as a bus depot if the route becomes operational.

Figure 13 Proposed Route 7 - Karachi

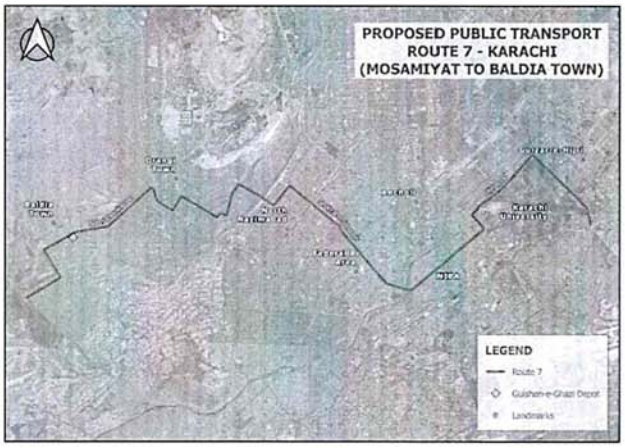
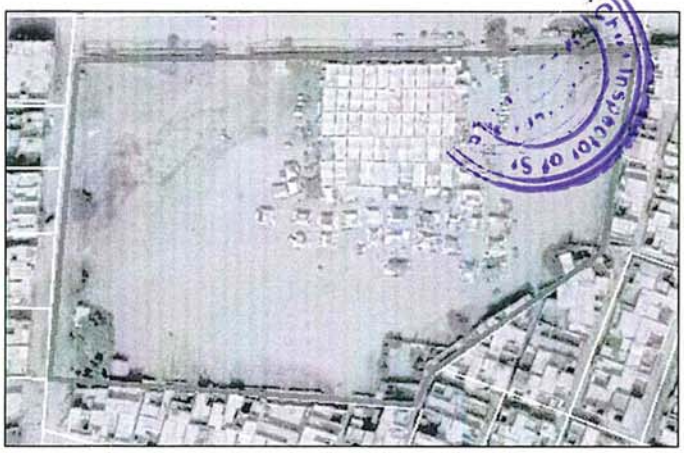


Figure 14 Gulshan e Ghazi Depot



Employee's Initials

Company's Initials

Table 8: List of Bus Stops for Route 7

S. No	Bus Stops A	Bus Stops B
1	7_1 A Mosamyat Bus Stop	7_1 B Mosamyat Bus Stop
2	7_2 A Dow University Bus Stop	7_2 B Dow University Bus Stop
3	7_3 A Suparco Bus Stop	7_3 B Suparco Bus Stop
4	7_4 A Sachal Goth Bus Stop	7_4 B Sachal Goth Bus Stop
5	7_5 A Suparco Road Bus Stop	7_5 A Suparco Road Bus Stop
6	7_6 A Masjid-e-Quba Bus Stop	7_6 B Masjid-e-Quba Bus Stop
7	7_7 A Iman Foundation Bus Stop	7_7 B Iman Foundation Bus Stop
8	7_8 A Khatam-e-Nabuwat Chowk Bus Stop	7_8 B Khatam-e-Nabuwat Chowk Bus Stop
9	7_9 A Model Park Bus Stop	7_9 B Model Park Bus Stop
10	7_10 A RajpootHospital Bus Stop	7_10 B RajpootHospital Bus Stop
11	7_11 A Liaquat College Bus Stop	7_11 B Liaquat College Bus Stop
12	7_12 A Maskan Chowrangi Bus Stop	7_12 B Maskan Chowrangi Bus Stop
13	7_13 A Sunny Arcade Bus Stop	7_13 B Sunny Arcade Bus Stop
14	7_14 A Disco Bakery Bus Stop	7_14 B Disco Bakery Bus Stop
15	7_15 A KDA Market Bus Stop	7_15 A KDA Market Bus Stop
16	7_16 A Rab Medical Bus Stop	7_16 B Rab Medical Bus Stop
17	7_17 A Continental Bakers Bus Stop	7_17 B Continental Bakers Bus Stop
18	7_18 A Practical Center Bus Stop	7_18 B Practical Center Bus Stop
19	7_19 A Gulshan 13D Bus Stop	7_19 B Gulshan 13D Bus Stop
20	7_20 A Gulshan-e-Shameem Bus Stop	7_20 B Gulshan-e-Shameem Bus Stop
21	7_21 A Shaheed-e-Millat College Bus Stop	7_21 B Shaheed-e-Millat College Bus Stop
S. No	**Bus Stops A**	**Bus Stops B**
22	7_22 A Block 9 Bus Stop	7_22 B Block 9 Bus Stop
23	7_23 A Mukka Chowk Bus Stop	7_23 B Mukka Chowk Bus Stop
24	7_24 A Bhaijan Chowk Bus Stop	7_24 B Bhaijan Chowk Bus Stop
25	7_25 A Ayesha Manzil Chowrangi Bus Stop	7_25 B Ayesha Manzil Chowrangi Bus Stop
26	7_26 A Tahir Villal Chowrangi Bus Stop	7_26 B Tahir Villal Chowrangi Bus Stop
27	7_27 A Landi Kotal Chowrangi Bus Stop	7_27 B Landi Kotal Chowrangi Bus Stop
28	7_28 A Tariq Bin Zayad Bus Stop	7_28 B Tariq Bin Zayad Bus Stop
29	7_29 A 5 Star Chowrangi Bus Stop	7_29 B 5 Star Chowrangi Bus Stop
30	7_30 A The Beginners School Bus Stop	7_30 B The Beginners School Bus Stop
31	7_31 A Shipowners College Bus Stop	7_31 B Shipowners College Bus Stop
32	7_32 A Aslam Market R Block Bus Stop	7_32 B Aslam Market R Block Bus Stop
33	7_33 A Laal Kothi Bus Stop	7_33 B Laal Kothi Bus Stop
34	7_34 A Nashad Medical Centre Bus Stop	7_34 B Nashad Medical Centre Bus Stop
35	7_35 A Qasba Colony Road Bus Stop	7_35 B Qasba Colony Road Bus Stop
36	7_36 A Baloch Goth Bus Stop	7_37 B M.P.R Colony Bus Stop
37	7_37 A M.P.R Colony Bus Stop	7_38 B Qasba 3.5 Bus Stop
38	7_38 A Qasba 3.5 Bus Stop	7_39 B Qasba Mor Bus Stop
39	7_39 A Qasba Mor Bus Stop	7_40 B Qadafi ChockBus Stop
40	7_40 A Qadafi Chock Bus Stop	7_41 B Banarsi Cloth Market Bus Stop

Employer's Initials

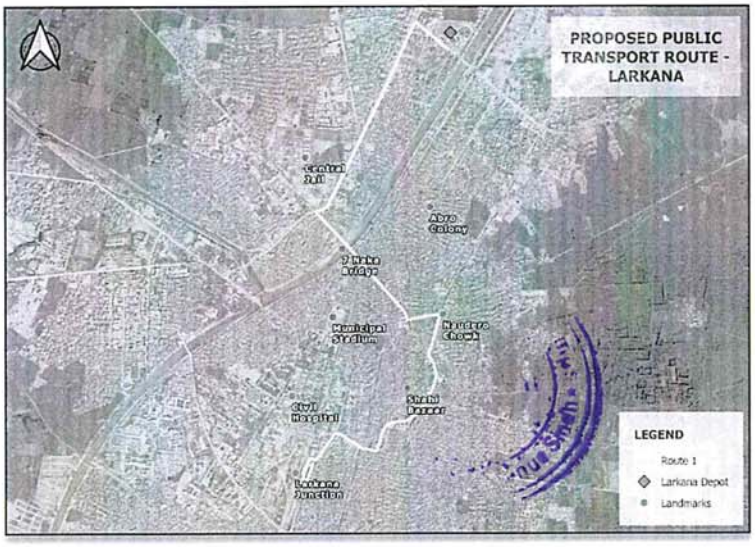
Company's Initials

41	7_41 A Banarsi Cloth Market Bus Stop	7_42 B Post Office Bus Stop
42	7_42 A Post Office Bus Stop	7_43 B 5 no. Chorangi Bus Stop
43	7_43 A 5 no. Chorangi Bus Stop	7_44 B Charahi Bus Stop
44	7_44 A Charahi Bus Stop	7_45 B Nishan e Haider Chowk Bus Stop
45	7_45 A Nishan e Haider Chowk Bus Stop	7_36 B Baloch Goth Bus Stop
46	7_46 A Farid Colony Bus Stop	7_46 B Farid Colony Bus Stop
47	7_47 A Orangi Town Bus Stop	7_47 B Orangi Town Bus Stop
48	7_48 A Madina Hospital Bus Stop	7_48 B Madina Hospital Bus Stop
49	7_49 A G7 Bus Stop	7_49 B G7 Bus Stop
50	7_50 A N5 Bus Stop	7_50 B N5 Bus Stop
51	7_51 A Gulshan-e-Ghazi Bus Stop	7_51 B Gulshan-e-Ghazi Bus Stop
52	7_52 A Z2 Bus Stop	7_52 B Z2 Bus Stop
53	7_53 A Baldia Stadium Bus Stop	7_53 B Baldia Stadium Bus Stop
54	7_54 A Farooq-e-Azam Jamia Masjid	7_54 B Farooq-e-Azam Jamia Masjid
55	7_55 A Chandni Chowk Bus Stop	7_55 B Chandni Chowk Bus Stop
56	7_56 A Altaf Hussain Road Bus Stop	7_56 B Altaf Hussain Road Bus Stop

Route 8 – Larkana

Public Transport route proposed for Larkana is 5.97 kilometers long, passing along the Indus Highway, 7 Naka Bridge, Larkana-Naudero Lakhi Highway and Station Road. The route links the inter-city bus terminal with Larkana railway station, while touching most of the major residential and commercial areas of the city. The route is shown in Figure 15.

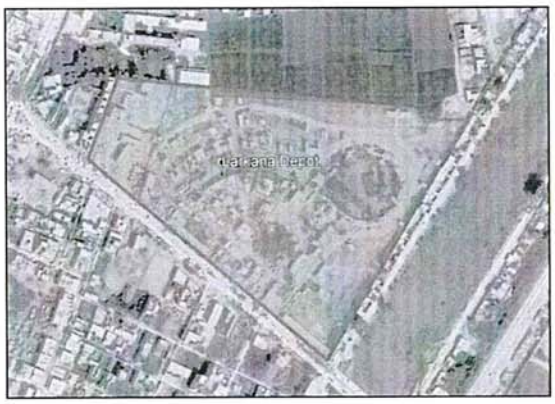
Figure 15 Proposed Route - Larkana



Employer's Initials

Company's Initials

Figure 16 Larkana Depot



Employer's Initials

Company's Initials

Table 9: List of Bus Stops for Larkana Route 1

S. No	Bus Stops A	Bus Stops B
1	1_1 A New Bus Stand Bus Stop	1_1 B New Bus Stand Bus Stop
2	1_2 A Indus Highway Bus Stop	1_2 B Indus Highway Bus Stop
3	1_3 A Magsi Pump Bus Stop	1_3 B Magsi Pump Bus Stop
4	1_4 A Pajro Hotel Bus Stop	1_4 B Pajro Hotel Bus Stop
5	1_5 A 7 Naka Bridge Bus Stop	1_5 B 7 Naka Bridge Bus Stop
6	1_6 A Jannati Masjid Bus Stop	1_6 B Jannati Masjid Bus Stop
7	1_7 A Larkana Road Bus Stop	1_7 B Larkana Road Bus Stop
8	1_8 A Ganjpur Chowk Bus Stop	1_8 B Ganjpur Chowk Bus Stop
9	1_9 A Naudero Chowk Bus Stop	1_9 B Naudero Chowk Bus Stop
10	1_10 A Jailus Road Bus Stop	1_10 B Jailus Road Bus Stop
11	1_11 A Lakhi Highway Bus Stop	1_11 B Lakhi Highway Bus Stop
12	1_12 A Data CNG Bus Stop	1_12 B Data CNG Bus Stop
13	1_13 A Deeni Madarsah Bus Stop	1_13 B Deeni Madarsah Bus Stop
14	1_14 A Makkah Medical Store	1_14 B Makkah Medical Store
15	1_15 A Green Palace Hotel	1_15 B Green Palace Hotel
16	1_16 A Royal Road Bus Stop	1_16 B Royal Road Bus Stop
17	1_17 A Railway Station Bus Stop	1_17 B Railway Station Bus Stop

Table below shows a summary of the Routes Start Points, End Points & Depots..

Table 3 Routes Summary

S. No.	Route ID	From	To	Depot
1	Route 1	Model Colony, Malir	Merewether Tower	Mehran Depot
2	Route 2	North Karachi	Indus Hospital, Korangi	U.P Morr Depot
3	Route 3	Ngan Chorangi, North Karachi	Singer Chorangi, Korangi	U.P Morr Depot
4	Route 4	Powerhouse, North Karachi	PN Dockyards	U.P Morr Depot
5	Route 5	Surjani Town	Masroor Base	Surjani Town Depot
6	Route 6	Gulshan e Bihar, Orangi Town	Singer Chorangi, Korangi	Gulshan e Bihar Depot
7	Route 7	Police Training College, Baldia Town	Mosamiyat Bus Stop	Gulshan e Ghazi Depot
8	Route 8	Larkana Bus Terminal	Larkana Junction	Larkana Depot

Table below shows a summary of the operational plan for all routes.

Table 4 Operational Parameters

S. No.	Route ID	Headway (min)		Total fleet (bus)	Vehicle Size	Round Trip Length (km)
		Peak	Off-peak			
1	Route 1	6	6	37	12 m	59
2	Route 2	6	6	38	12 m	62

Employer's Initials

Company's Initials

3	Route 3	5	5	38	12 m	62
4	Route 4	5	5	37	12 m	62
5	Route 5	6	6	34	8.5 m	50
6	Route 6	7	7	28	8.5 m	50
7	Route 7	7	7	28	8.5 m	50
8	Route 8	8	8	10	8.5 m	12

Employer's Initials

Company's Initials

SCHEDULE B: FORM OF O&M PLAN

[to be inserted on Effective Date]

……
Employer's Initials

……
Company's Initials

SCHEDULE C: FORM OF ADVANCE PAYMENT SECURITY

....., 20...

To:
[•]
[*Insert Address*]

ADVANCE PAYMENT SECURITY NO. ..... (the "**Security**")

1. We, [•][1], being the Security issuing bank (the **Issuing Bank**) understand that the following parties are entering into an agreement entitled the "Supply, Construction, Operations and Maintenance Agreement" (the **"Agreement"**), on and about the date hereof:

(a) **SINDH MASS TRANSIT AUTHORITY,** a statutory body constituted pursuant to Section 4 of the SMTA Act with its office located at [•], Pakistan which expression shall include its successors-in-interest and permitted assigns (the **"Employer"**); and

(b) **[•],** a company incorporated under the laws of the [•] having its registered office located at **[•]** (the **"Company"**).

2. Further, we understand that pursuant to the Agreement, the Company is required to provide the Employer with an advance payment security equal to [•] [•]/- ([•] [•]) and maintain the same in accordance with the terms of the Agreement. Subject to the receipt of this Security by the Employer, the Employer is required to pay the Company an amount equal to [•] [•]/- ([•] [•]) (the **Advance Payment**).

3. The above premised, we (the Issuing Bank) hereby undertake irrevocably and unconditionally on demand to pay to the Employer, without any notice, reference or recourse to the Company or to any other entity or without any recourse or reference to the the Agreement or any other document, agreement, instrument or deed, any sum or sums (or any part thereof) equivalent in aggregate up to but not exceeding a maximum amount of:

[•] [•]/- ([•][•])
(the **Guaranteed Amount**)

at sight and immediately, however not later than three (3) business days from the date of receipt of the Employer's first written demand (the **Demand**) at the Issuing Bank's offices located at [•] or through SWIFT instructions transmitted by the Employer's bank (i.e., the Sindh Bank), on behalf of the Employer, to the Issuing Bank, such Demand stating:

(a) that the Company is in breach of its obligations to repay the Advance Payment (in whole or in part) to the Employer or extend the validity of the Security;
(b) the total amounts demanded; and
(c) the details of the account in which the total amounts demanded are to be credited.

4. A Demand shall only be honoured by us (i) in the case of a written Demand, if it is made by and bears the signature of an authorised officer or other representative of the Employer; or (ii) in the case of a Demand transmitted through SWIFT, if it is transmitted through authenticated SWIFT instructions by the Employer's bank (i.e., *[to be inserted]*), on behalf of the Employer.

5. We, the Issuing Bank, shall unconditionally honour a Demand hereunder made in compliance with this Security at sight and immediately on the date of receipt of the Demand, as stated earlier, and shall transfer the amount specified in the Demand to the bank account, as notified in the Demand, in immediately available and freely transferable funds in the currency of

[1] Insert name of Issuing Bank.

..... *Employer's Initials*

..... *Company's Initials*

this Security, free and clear of and without any set-off or deduction for or on account of any present or future taxes, levies, imposts, duties, charges, fees, deductions or withholdings of any nature whatsoever and by whomsoever imposed.

6. This Security shall come into force and shall become automatically effective upon the payment of the Advance Payment to the Company, as evidenced through a copy of SWIFT instructions transmitted by the Employer's bank (i.e., *[to be inserted]*) to the Issuing Bank.

7. After having come into force, this Security and our obligations hereunder will expire on the earlier of:

(i) [•] (the **Advance Payment Security Expiry Hard Date**) provided that, in the event that the Issuing Bank has receipt of the Demand on or immediately prior to the Advance Payment Security Expiry Hard Date, the Issuing Bank shall honour that Demand;

(ii) when the aggregate of all payments made by us under this Security equal the Guaranteed Amount; or

(iii) the Guaranteed Amount is reduced to zero in terms of paragraph 9 below.

8. Upon expiry, this Security shall be returned to the Company. Multiple Demands may be made by the Employer under this Security but our aggregate liability will be restricted up to the Guaranteed Amount.

9. The Guaranteed Amount will be reduced in accordance with the Agreement upon the Company's presentation to us of the relevant commercial invoice, duly signed and approved by the Employer, clearly stating the amount by which the Guaranteed Amount is to be reduced.

10. We hereby agree that any amendment, renewal, extension, modification, compromise, release or discharge by mutual agreement by the Employer, the Company or any other entity of any document, agreement, instrument or deed shall not in any way impair or affect our liabilities hereunder and maybe undertaken without notice to us and without the necessity for any additional endorsement, consent or guarantee by us.

11. This Security for its validity period shall not be affected in any manner by any change in our constitution or of the Company's constitution or of their successors and assignees and this Security shall be legally valid, enforceable and binding on each of their successors and permitted assignees.

12. All references to any contract, agreement, deed or other instruments or documents are by way of reference only and shall not affect our obligations to make payment under the terms of this Security.

13. If one or more of the provisions of this Security are held or found to be invalid, illegal, or unenforceable for any reason whatsoever, in any respect, any such invalidity, illegality, or unenforceability of any provision shall not affect the validity of the remaining provisions of this Security.

14. We hereby declare and confirm that under our constitution and applicable laws and regulations, we have the necessary power and authority, and all necessary authorizations, approvals and consents thereunder to enter into, execute, deliver and perform the obligations we have undertaken under this Security, which obligations are valid and legally binding on and enforceable against us under the laws of Pakistan and under the laws of the jurisdiction where this Security is issued. Further, that the signatory(ies) to this Security is/are our duly authorized officer(s) to execute this Security.

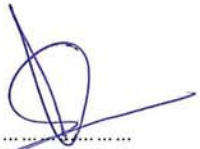
Employer's Initials

Company's Initials

15. This Security and all rights and obligations arising from this Security shall be governed and construed in all respects in accordance with the laws of Pakistan. The courts in Pakistan shall have exclusive jurisdiction in respect of any dispute relating to any matter contained herein.

16. The issuance of this Security is permitted according to the laws of Pakistan and the laws of the jurisdiction where this Security is issued.

17. This Security is subject to the Uniform Rules for Demand Guarantee, ICC Publication No.758. To the extent that there is any inconsistency between the terms of this Security and the Uniform Rules for Demand Guarantees, ICC Publication No. 758, the terms of this Security shall prevail.



Employer's Initials

Company's Initials

SCHEDULE D: FORM OF MAINTENANCE PERFORMANCE GUARANTEE

....., 2021

To:

[•]

[*Insert Address*]

Maintenance Performance Guarantee No. ..... (the **Security**)

We, [•][2], being the Security issuing bank (the Issuing Bank) understand that the following parties have entered into an agreement entitled "SUPPLY, CONSTRUCTION, OPERATIONS AND MAINTENANCE AGREEMENT" dated ....., 2021 (the **Agreement**):

(a) Sindh Mass Transit Authority, a statutory body constituted pursuant to Section 4 of the SMTA Act with its office located at [●], Pakistan (the **Employer**); and

(b) [•], a company incorporated under the laws of [•] having its registered office located at [•] (the **Company**).

Further, we understand that pursuant to the the Agreement, the Company is required to provide the Employer with a maintenance performance Security equal to [•] [•]/- ([•] [•]) and maintain the same in accordance with the terms of the Agreement.

The above premised, we (the Issuing Bank) hereby undertake irrevocably and unconditionally on demand to pay to the Employer , without any notice, reference or recourse to the Company or to any other entity or without any recourse Agreement or any other document, agreement, instrument or deed, any sum or sums (or any part thereof) equivalent in aggregate up to but not exceeding a maximum amount of:

[•] [•]/- ([•][•])

(the Guaranteed Amount)

at sight and immediately, however not later than [three (3)] business days from the date of receipt of the Employer's first written demand (the **Demand**) at the Issuing Bank's offices located at [•] or through SWIFT instructions transmitted by the Employer's bank (i.e. [the *[to be inserted]*), on behalf of the Employer, to the Issuing Bank, such Demand stating:

(a) that the Company is in breach of its obligations towards the Employer:

(i) specifying the breach and, if applicable, requesting the Company to cure the breach;

(ii) if applicable, certifying that the Company has failed to remedy the breach within the period allowed for remedial action; and

(b) the total amounts demanded.

A Demand shall only be honoured by us (i) in the case of a written Demand, if it is made by and bears the signature of an authorised officer or other representative of the Employer; or (ii) in the case of a Demand transmitted through SWIFT, if it is transmitted through authenticated SWIFT instructions by the Employer's bank (i.e. *[to be inserted]*), on behalf of the Employer.

[2] Insert name of Issuing Bank;

..... *Employer's Initials*

..... *Company's Initials*

We, the Issuing Bank, shall unconditionally honour a Demand hereunder made in compliance with this Security at sight and immediately on the date of receipt of your Demand, as stated earlier, and shall transfer the amount specified in the Demand to the bank account, as notified in the Demand, in immediately available and freely transferable funds in the currency of this Security, free and clear of and without any set-off or deduction for or on account of any present or future taxes, levies, imposts, duties, charges, fees, deductions or withholdings of any nature whatsoever and by whomsoever imposed.

This Security shall come into force and shall become automatically effective upon its issuance.

After having come into force, this Security and our obligations hereunder will expire on the earlier of:

(i) [•] (the **Maintenance Performance Guarantee Original Expiry Date**) provided that, in the event the Issuing Bank has receipt of the Demand on or immediately prior to the Maintenance Performance Guarantee Original Expiry Date, the Issuing Bank shall honour that Demand; or

(ii) when the aggregate of all payments made by us under this Security equal the Guaranteed Amount.

Upon expiry, this Security shall be returned to the Company without undue delay. Multiple Demands may be made by the Employer under this Security but our aggregate liability will be restricted up to the Guaranteed Amount.

The Guaranteed Amount shall be revised upon receipt by us of a notice duly signed by the Employer and the Company of the revised guaranteed amount.

We hereby agree that any amendment, renewal, extension, modification, compromise, release or discharge by mutual agreement by the Employer, the Company or any other entity of any document, agreement, instrument or deed shall not in any way impair or affect our liabilities hereunder and maybe undertaken without notice to us and without the necessity for any additional endorsement, consent or guarantee by us.

This Security for its validity period shall not be affected in any manner by any change in our constitution or of the Company's constitution or of their successors and assignees and this Security shall be legally valid, enforceable and binding on each of their successors and permitted assignees.

All references to any contract, agreement, deed or other instruments or documents are by way of reference only and shall not affect our obligations to make payment under the terms of this Security.

If one or more of the provisions of this Security are held or found to be invalid, illegal, or unenforceable for any reason whatsoever, in any respect, any such invalidity, illegality, or unenforceability of any provision shall not affect the validity of the remaining provisions of this Security.

We hereby declare and confirm that under our constitution and applicable laws and regulations, we have the necessary power and authority, and all necessary authorizations, approvals and consents thereunder to enter into, execute, deliver and perform the obligations we have undertaken under this Security, which obligations are valid and legally binding on and enforceable against us under the laws of Pakistan and under the laws of the jurisdiction where this Security is issued. For the avoidance of doubt, in the event of any inconsistency between the laws of Pakistan and the laws of the jurisdiction where the Security was issued, we agree that the laws of Pakistan shall prevail. Further, that the signatory(ies) to this Security is/are our duly authorized officer(s) to execute this Security.

……
Employer's Initials

……
Company's Initials

This Security and all rights and obligations arising from this Security shall be governed and construed in all respects in accordance with the laws of Pakistan. The courts in Pakistan shall have exclusive jurisdiction in respect of any dispute relating to any matter contained herein.

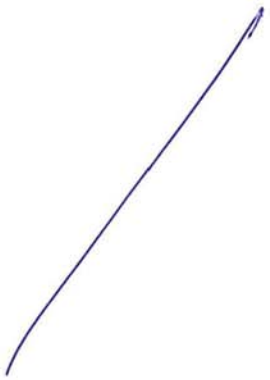
The issuance of this Security is permitted according to the laws of Pakistan and the laws of the jurisdiction where this Security is issued.

This Security is subject to the Uniform Rules for Demand Guarantee, ICC Publication No.758. To the extent that there is any inconsistency between the terms of this Security and the Uniform Rules for Demand Guarantees, ICC Publication No. 758, the terms of this Security shall prevail.

.....

Name: .....

Designation: .....



.....
Employer's Initials

.....
Company's Initials

SCHEDULE E: FORM OF PERFORMANCE SECURITY

....., 2021

To:

[•]

[*Insert Address*]

Performance **SECURITY** No. ..... (the **Security**)

We, [•][3], being the Security issuing bank (the Issuing Bank) understand that the following parties have entered into an agreement entitled "SUPPLY, CONSTRUCTION, OPERATIONS AND MAINTENANCE AGREEMENT" dated ....., 2021 (the **Agreement**):

(a) Sindh Mass Transit Authority, a statutory body constituted pursuant to Section 4 of the SMTA Act with its office located at [●], Pakistan (the **Employer**); and

(b) [•], a company incorporated under the laws of [•] having its registered office located at [•] (the **Company**).

Further, we understand that pursuant to the Notification of Award dated [•] (the **"Notification of Award"**) and theAgreement, the Company is required to provide the Employer with a performance Security equal to [•] [•]/- ([•] [•]) and maintain the same in accordance with the terms of the Agreement.

The above premised, we (the Issuing Bank) hereby undertake irrevocably and unconditionally on demand to pay to the Employer , without any notice, reference or recourse to the Company or to any other entity or without any recourse or reference to the Notification of Award,Agreement or any other document, agreement, instrument or deed, any sum or sums (or any part thereof) equivalent in aggregate up to but not exceeding a maximum amount of:

[•] [•]/- ([•][•])

(the Guaranteed Amount)

at sight and immediately, however not later than [three (3)] business days from the date of receipt of the Employer's first written demand (the **Demand**) at the Issuing Bank's offices located at [•] or through SWIFT instructions transmitted by the Employer's bank (i.e. [the *[to be inserted]*), on behalf of the Employer, to the Issuing Bank, such Demand stating:

(a) that the Company is in breach of its obligations towards the Employer:

(i) specifying the breach and, if applicable, requesting the Company to cure the breach;

(ii) if applicable, certifying that the Company has failed to remedy the breach within the period allowed for remedial action; and

(b) the total amounts demanded.

A Demand shall only be honoured by us (i) in the case of a written Demand, if it is made by and bears the signature of an authorised officer or other representative of the Employer; or (ii) in the

[3] Insert name of Issuing Bank;

..... *Employer's Initials*

..... *Company's Initials*

case of a Demand transmitted through SWIFT, if it is transmitted through authenticated SWIFT instructions by the Employer's bank (i.e. *[to be inserted]*), on behalf of the Employer.

We, the Issuing Bank, shall unconditionally honour a Demand hereunder made in compliance with this Security at sight and immediately on the date of receipt of your Demand, as stated earlier, and shall transfer the amount specified in the Demand to the bank account, as notified in the Demand, in immediately available and freely transferable funds in the currency of this Security, free and clear of and without any set-off or deduction for or on account of any present or future taxes, levies, imposts, duties, charges, fees, deductions or withholdings of any nature whatsoever and by whomsoever imposed.

This Security shall come into force and shall become automatically effective upon its issuance.

After having come into force, this Security and our obligations hereunder will expire on the earlier of:

(i) [•] (the **Performance Security Original Expiry Date**) provided that, in the event the Issuing Bank has receipt of the Demand on or immediately prior to the Performance Security Original Expiry Date, the Issuing Bank shall honour that Demand; or

(ii) when the aggregate of all payments made by us under this Security equal the Guaranteed Amount.

Upon expiry, this Security shall be returned to the Company without undue delay. Multiple Demands may be made by the Employer under this Security but our aggregate liability will be restricted up to the Guaranteed Amount.

The Guaranteed Amount shall be revised upon receipt by us of a notice duly signed by the Employer and the Company of the revised guaranteed amount.

We hereby agree that any amendment, renewal, extension, modification, compromise, release or discharge by mutual agreement by the Employer, the Company or any other entity of any document, agreement, instrument or deed shall not in any way impair or affect our liabilities hereunder and maybe undertaken without notice to us and without the necessity for any additional endorsement, consent or guarantee by us.

This Security for its validity period shall not be affected in any manner by any change in our constitution or of the Company's constitution or of their successors and assignees and this Security shall be legally valid, enforceable and binding on each of their successors and permitted assignees.

All references to any contract, agreement, deed or other instruments or documents are by way of reference only and shall not affect our obligations to make payment under the terms of this Security.

If one or more of the provisions of this Security are held or found to be invalid, illegal, or unenforceable for any reason whatsoever, in any respect, any such invalidity, illegality, or unenforceability of any provision shall not affect the validity of the remaining provisions of this Security.

We hereby declare and confirm that under our constitution and applicable laws and regulations, we have the necessary power and authority, and all necessary authorizations, approvals and consents thereunder to enter into, execute, deliver and perform the obligations we have undertaken under this Security, which obligations are valid and legally binding on and enforceable against us under the laws of Pakistan and under the laws of the jurisdiction where this Security is issued. For the avoidance of doubt, in the event of any inconsistency between the laws of Pakistan and the laws of the jurisdiction where the Security was issued, we agree that the laws of Pakistan shall prevail.

Employer's Initials

Company's Initials

Further, that the signatory(ies) to this Security is/are our duly authorized officer(s) to execute this Security.

This Security and all rights and obligations arising from this Security shall be governed and construed in all respects in accordance with the laws of Pakistan. The courts in Pakistan shall have exclusive jurisdiction in respect of any dispute relating to any matter contained herein.

The issuance of this Security is permitted according to the laws of Pakistan and the laws of the jurisdiction where this Security is issued.

This Security is subject to the Uniform Rules for Demand Guarantee, ICC Publication No.758. To the extent that there is any inconsistency between the terms of this Security and the Uniform Rules for Demand Guarantees, ICC Publication No. 758, the terms of this Security shall prevail.

.....

Name: .....

Designation: .....

.....
Employer's Initials

.....
Contractor's Initials

SCHEDULE F: FORM OF WARRANTY BOND

....., 2021
To:
[●]
[Insert Address]

WARRANTY BOND NO. ..... (the "**Bond**")

We, [●][4], being the Bond issuing bank (the **"Issuing Bank"**) understand that the following parties have entered into an agreement entitled "SUPPLY, CONSTRUCTION, OPERATIONS AND MAINTENANCE AGREEMENT" dated ....., 2021 (the "**Agreement**"):

(a) **SINDH MASS TRANSIT AUTHORITY**, a statutory body constituted pursuant to Section 4 of the SMTA Act with its office located at [●], Pakistan (the **"Employer"**); and

(b) **[●],** a company incorporated under the laws of the [●] having its registered office located at **[●]** (the **"Company"**).

Further, we understand that the Company is required to provide the Employer with a warranty bond equal to [●] [●]/- ([●] [●]) and maintain the same in accordance with the terms of the Agreement.

The above premised, we (the Issuing Bank) hereby undertake irrevocably and unconditionally on demand to pay to the Employer, without any notice, reference or recourse to the Company or to any other entity or without any recourse or reference to the Agreement or any other document, agreement, instrument or deed, any sum or sums (or any part thereof) equivalent in aggregate up to but not exceeding a maximum amount of:

[●] [●]/- ([●][●])
(the **"Guaranteed Amount"**)

at sight and immediately, however not later than [three (3)] business days from the date of receipt of the Employer's first written demand (the **"Demand"**) at the Issuing Bank's offices located at [●] or through SWIFT instructions transmitted by the Employer's bank (i.e. the [Sindh Bank]), on behalf of the Employer, to the Issuing Bank, such Demand stating:

(a) that the Company is in breach of its obligations towards the Employer:

  (i) specifying the breach and, if applicable, requesting the Company to cure the breach;

  (ii) if applicable, certifying that the Company has failed to remedy the breach within the period allowed for remedial action; and

(b) the total amounts demanded.

A Demand shall only be honoured by us: (i) in the case of a written Demand, if it is made by and bears the signature of an authorised officer or other representative of the Employer; or (ii) in the

[4] Insert name of Issuing Bank.

Employer's Initials

Company's Initials

case of a Demand transmitted through SWIFT, if it is transmitted through authenticated SWIFT instructions by the Employer's bank (i.e. the Sindh Bank), on behalf of the Employer.

We, the Issuing Bank, shall unconditionally honour a Demand hereunder made in compliance with this Bond at sight and immediately on the date of receipt of your Demand, as stated earlier, and shall transfer the amount specified in the Demand to the bank account, as notified in the Demand, in immediately available and freely transferable funds in the currency of this Bond, free and clear of and without any set-off or deduction for or on account of any present or future taxes, levies, imposts, duties, charges, fees, deductions or withholdings of any nature whatsoever and by whomsoever imposed.

This Bond shall come into force and shall become automatically effective upon its issuance.

After having come into force, this Bond and our obligations hereunder will expire on [•] (the **"Warranty Bond Original Expiry Date"**) provided that, in the event the Issuing Bank has receipt of the Demand on or immediately prior to the Warranty Bond Original Expiry Date, the Issuing Bank shall honour that Demand.

Upon expiry, this Bond shall be returned to the Company without undue delay. Multiple Demands may be made by the Employer under this Bond but our aggregate liability will be restricted up to the Guaranteed Amount.

The Guaranteed Amount shall be revised upon receipt by us of a notice duly signed by the Employer and the Company of the revised guaranteed amount.

We hereby agree that any amendment, renewal, extension, modification, compromise, release or discharge by mutual agreement by the Employer, the Company or any other entity of any document, agreement, instrument or deed shall not in any way impair or affect our liabilities hereunder and maybe undertaken without notice to us and without the necessity for any additional endorsement, consent or guarantee by us.

This Bond for its validity period shall not be affected in any manner by any change in our constitution or of the Company's constitution or of their successors and assignees and this Bond shall be legally valid, enforceable and binding on each of their successors and permitted assignees.

All references to any contract, agreement, deed, or other instruments or documents are by way of reference only and shall not affect our obligations to make payment under the terms of this Bond.

If one or more of the provisions of this Bond are held or found to be invalid, illegal, or unenforceable for any reason whatsoever, in any respect, any such invalidity, illegality, or unenforceability of any provision shall not affect the validity of the remaining provisions of this Bond.

We hereby declare and confirm that under our constitution and applicable laws and regulations, we have the necessary power and authority, and all necessary authorizations, approvals and consents thereunder to enter into, execute, deliver and perform the obligations we have undertaken under this Bond, which obligations are valid and legally binding on and enforceable against us under the laws of Pakistan and under the laws of the jurisdiction where this Bond is issued. Further, that the signatory(ies) to this Bond is/are our duly authorized officer(s) to execute this Bond.

This Bond and all rights and obligations arising from this Bond shall be governed and construed in all respects in accordance with the laws of Pakistan. The courts in Pakistan shall have exclusive jurisdiction in respect of any dispute relating to any matter contained herein.

Employer's Initials

Company's Initials

The issuance of this Bond is permitted according to the laws of Pakistan and the laws of the jurisdiction where this Bond is issued.

This Bond is subject to the Uniform Rules for Demand Guarantee, ICC Publication No.758. To the extent that there is any inconsistency between the terms of this Bond and the Uniform Rules for Demand Guarantees, ICC Publication No. 758, the terms of this Bond shall prevail.

.....
Name: .....
Designation: .....

.....
Employer's Initials

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Company's Initials

SCHEDULE G: KEY PERFORMANCE INDICATORS

1. KEY PERFORMANCE INDICATORS

1.1 KPIs

1.1.1 The Company's performance shall be evaluated by means of key performance indicators ("KPIs"). Failure to comply with KPIs shall lead to the application of Performance Liquidated Damages as per the below table:

Sr. No.	KPI	Failure Event	Percentage of Performance Liquidated Damages (LD %)
1	**ROAD SAFETY**	***Assessment through self-reporting***	
1.1	Prevention of Severe Accidents	Accident involving a Bus due to Driver's fault or malfunctioning of the Bus resulting in death or severe physical injury of a passenger or other person **(Severe Accident)**	8.0% per occurrence
1.2	Prevention of Material Accidents	Accident involving a Bus due to Driver's fault or malfunctioning of the Bus resulting in minor physical injury to a passenger or other person or material damage to Employer's assets including road infrastructure or other infrastructure **(Material Accident)**	4.0% per occurrence
1.3	Prevention of Minor Accidents	Accident involving a Bus due to Driver's fault or malfunctioning of the Bus not resulting in any physical injury to a passenger or other person nor any material damage to Employer's assets **(Minor Accident)**	1.0% per occurrence
1.4	Immediate Reporting of Emergencies	Emergency not reported to Employer and the police within fifteen (15) minutes of its occurrence or maximum at end of trips	0.5% per occurrence
1.5	Prevention of Traffic Offences	Driver charged by the police for committing a traffic offence	0.3 % per occurrence
1.6	Strike by driver or staff of Company	Strike leading to operation disruption or loss of service	5.0% per occurrence per hour
1.7	Misbehaviour	Staff of Company personnel do not adhere to Code of Conduct or misbehave with passengers	0.3 % per occurrence
1.8	Suspension of services	Company completely suspends services without permission of Employer	5 % per 1 (one) Hour of occurrence

The Key Performance Indicators (KPIs) describe target performance levels which the Company shall aim to deliver for the Bus Operations. It also lists the procedures for managing unavailability of O&M Services, and associated penalties which will be applied if Company fails to meet any Key Performance Indicators in accordance with this Agreement.

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Employer's Initials

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National Radio Telecommunication Corporation
HARIPUR
PAKISTAN

S. No.	Description	Formula	Standard (per Month)
1	Trip Efficiency / Regularity of Operation	No. of Trips operated x 100 / No. of trips assigned/schedule	More than 90%
2	Reliability of Buses / No. of breakdowns		Maximum 1 per route
3	Punctuality (adherence to time schedule)	No. of trips on time from first stop x 100 / total no. of trips operated	More than 90%
4	Cleanness of Buses / Number of Buses found dirty		12% of the Fleet Size
5	Safety of Operation / Rate of Accidents		Nil
6	User Satisfaction / Number of Passenger Complaints		Maximum 50
7	Travel Time Regularity	(No. of trips completed within scheduled time x 100) / Total No. of trips operated	More than 80%
8	Bus Bunching		No. of Incidents

In case Employer and/or its Independent Expert has determined that non-compliance with KPI occurred due to reasons outside of the Company's control, then responsibilities for that failure event shall not lead to any Performance Liquidated Damages.

S. No.	Description	Formula[5]	PKR fined based on Monthly evaluation
1	Trip Efficiency / Regularity of Operation	85%-90% 75%-85% Below 75%	6,000 x Number of Trips Missed 8,000 x Number of Trips Missed Not Permitted, may result in damages / Termination of Agreement as per Employer's decision
2	Reliability of Buses / No. of Breakdowns (per route)	2-5 6-8 Above 8	30,000 x Number of Breakdowns 40,000 x Number of Breakdowns Not Permitted, May result in damages / Termination of Agreement as per Employer's decision
3	Punctuality (adherence to time schedule)	80%-90% Below 80%	7,000 x Number of Trips Observed Late Not Permitted, May result in damages / Termination of Agreement as per Employer's decision
4	Cleanness of Buses / Number of Buses found dirty	12% - 20% Above 15%	5,000 x Number of Buses observed dirty 8,000 x Number of Buses observed dirty
5	Safety of Operation / Rate of Accidents	Upto 5% 6% - 10%	30,000 x Number of Accidents 40,000 x Number of Accidents

[5] To be considered as a percentage of fleet size for items at S. No.1, 3, 4 & 5.

Employer's Initials

Company's Initials

S. No.	Description	Formula[5]	PKR fined based on Monthly evaluation
		Above 10%	Not Permitted, May result in damages / Termination of Agreement as per Employer's decision
6	User Satisfaction / Number of Passenger Complaints	50-80 Above 80	400 x Number of Complaints 1000 x Number of Complaints
7	Travel Time Regularity	70% - 80% Below 80%	8,000 x No. of trips observed late Not permitted may result into damages / termination of Agreement as per Employer's decision.
8	Bus Bunching		400 x Number of Occurrences

PERFORMANCE LIQUIDATED DAMAGES DUE TO OPERATIONAL ISSUES

FINES FOR DEFICIENCIES RELATED TO THE CONDITIONS OF THE BUSES

S. No.	Description of the infraction	Fine (PKR)
1	To place any type of decoration or non-functional items inside or outside the Bus, which have not been installed by the original manufacturer of the chassis or body	3,000
2	To polarize, totally or partially, side, front or back windows.	5,000
3	To use or to modify colours and designs of the external paintwork of the Bus (excluding advertisements designs for non-fare revenues) outside the standards parameters established by Employer.	3,000
4	To install additional lamps such as "explorers", chassis illumination or decoration, which are not regulatory or installed by the original manufacturer	3,000
5	To place advertising material not authorized by Employer or to infringe regulation regarding advertising material inside & outside of the Buses.	5,000
6	To drive with lights off at night.	3,000
7	To Operate Buses with sound inside the Bus, or to read announcements not authorized by Employer.	3,000
8	To use unauthorized electronic equipment by the Driver (cell phones, etc.) during driving.	3,000
9	To drive with defective front, side and/or back or brake lights.	3,000
10	Broken, ripped or loose seat(s).	4,000
11	Section of handrail loose or with cutting edges.	3,000
12	Broken side, front or back window.	4,000
13	Lack of illumination or incorrect arrangement in terms of visibility of front, side or back Route displays.	4,000
14	To Operate Bus with visible dents or impacts.	4,000
15	Inadequate operation of passenger access doors, either due to damage or incorrect operation which affects boarding and alighting times by passengers.	3,000
16	Incorrect operation or damage to doors for emergency exits.	4,000

Employer's Initials

Company's Initials

17	To violate or to alter without prior authorization of the ITS related equipment (Logical Unit, Radio and all other equipment for that purpose).	4,000
18	The on board wireless communication in a single bus failed to communicate with control centre for any reason whatsoever	4,000
19	Failure to park vehicles at night parking place or at day	5,000
20	Any subsystem of the vehicles fail such as PIS, door sensors, CAN, camera etc. Inadequate operation of passenger access doors, emergency exit doors either due to damage or incorrect operation including non-functional door cameras and display units which affects boarding and alighting times or safety of passengers.	4,000
21	Missing (as per quantity installed by the manufacturer) / non-functional fire extinguishers, Emergency Glass Breaking Hammers or switches used for emergency opening	5,000

FINES FOR DEFICIENCIES RELATED TO USER OPERATION

S. No.	Description of the infraction	Fine (PKR)
1	Parking Buses in depot/stops in quantity and/or time higher than permitted.	4,000
2	Parking in places other than those permitted by Employer	5,000
3	Stopping at a stop not established on the route for a service without the prior authorization or instruction of Employer	5,000
4	Changing the route of a service without the prior authorization or instruction of Employer	6,000
5	Operating hours or services not authorized by Employer to the Company.	4,000
6	Boarding or alighting passengers at points other than the designated stops.	4,000
7	Delaying Operation without cause.	3,000
8	Overtaking Buses of the same service	5,000
9	To run out of fuel during trip	8,000
10	Operating without air-condition in summer and heating in winter season	7,000
11	Mechanical problems resulting in haul of Bus (reaction time more 30 min)	20,000

SANCTIONS AGAINST DRIVERS & CONDUCTORS

S. No.	CONDUCT DESCRIPTION	TEMPORARY SUSPENSION	FINE (PKR)
1	Failure to carry personal and/or Bus identification.	Suspension on the following day	1,000
2	Refusal to provide information	One day suspension	2,000
4	To cross a red light	One in a day, immediate substitution and suspension the following day	5,000
5	To carry weapons of any kind	Withdrawal from the system	10,000
6	Disobedience of any authorities	One in a day, causes one day suspension	5,000
7	Drunkenness or using drugs on duty	Withdrawal from the	10,000

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Employer's Initials

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Company's Initials

National Radio Telecommunication Corporation HARIPUR PAKISTAN

		System	
8	Smoking during driving	One day suspension	4,000
9	To cause an accident due to irresponsible behaviour	One in a day, causes one day suspension	4,000
10	To drive above speed limits	One day suspension	2,000
11	Illegal zebra crossings		2,000
12	To allow any passenger traveling without paying fare	One day suspension	2,000
13	Abandoning and/or alighting from Bus without cause and/or authorization from Employer		2,000
14	Verbal or physical ill-treatment of passenger (referring to driver & conductor)		6,000
15	To move the bus without fully closing the bus doors	Withdrawal from System	50,000
16	Failure to follow or acknowledge instructions issued by the Operations Control Centre, operations personnel or traffic authorities.	Withdrawal from System	8,000

FINES OF ENVIRONMENTAL VIOLATIONS

S. No.	Description of the Infraction	Amount (PKR)
1	Noise emissions above environmental standards	15,000
2	To operate leaking fuel or lubricants.	8,000
3	Gas emissions above environmental standards	15,000
4	Non-compliance with the acceptable waste disposal	15,000
5	Non-compliance with the O&M Plan or with operating indices, driving habits recommended and methodology of work.	15,000

FINES OF INSTITUTIONAL AND ADMINISTRATIVE NATURE

Employer's Initials

Company's Initials

1.2 Performance Liquidated Damages (LD%)

1.2.1 The Performance Liquidated Damages applicable for a given [month] shall be:

(a) during the first one (01) Month from the Commencement Date, zero percent (0%); and

(b) from the second (2nd) Month from the Commencement Date, the sum of Performance Liquidated Damages applicable for all events of non-compliance with KPIs having occurred during that month, subject to a maximum of one hundred percent (100%).

1.2.2 On the tenth (10th) business day of each Month ("**Relevant Month**"), Employer shall send to the Company a notice informing it of the Performance Liquidated Damages which have been calculated for it for the previous month with evidence.

1.2.3 If the Company objects to the notice referred to in paragraph 2.2.2, the Company shall inform Employer thereof no later than the thirteenth (13th) business days of the relevant month and shall send written evidence supporting its objection.

2.2.4 Employer shall then decide and give notice of its decision to the Company no later than the seventeenth (17th) Business days of each Relevant Month as to its reconsidered determination of the applicable Performance Liquidated Damages for the previous Month.

S. No.	Description of the infraction	Fine (PKR)
1	Failure delivers information required by Employer, or delivers same outside the terms which for this purpose Employer may establish.	5,000
2	To refuse to accept the visits of Employer inspectors, representative, Independent Expert and to hide, conceal or misrepresent information or to provide partial or erroneous information.	5,000
3	To implement administrative and accounting practices which impair the reliability of the accounting and financial information which the Company will keep in accordance with this Agreement.	2,000
4	When it is shown that there are deliberate practices which restrict free competition or which imply abuse of the dominant position which the Company could have obtained as a result of the Agreement.	2,000
5	To omit specifications, limitations of content or norms contained in the manuals and regulations which Employer issues or has issued regarding placement of advertising material inside buses.	2,000
6	To omit compliance with obligations regarding Driver training	2,000
7	To omit compliance with obligations established by the employment and social security regime regarding drivers.	2,000
8	To breach contractual provisions regarding financial mechanisms and liens on Buses.	2,000
9	To encumber and/or transfer title of Buses without the prior, express and written authorization of Employer	2,000

Employer's Initials ..... *Company's Initials* .....

1.3 Excess Headway Time/ Scheduled Headway Time Variations

1.3.1 Employer shall designate a number of stops ("**Timing Points**") where Excess Headway Time between Buses on a same Route, in each direction, is to be calculated.

1.4 Bus Inspections

1.4.1 Employer may at all reasonable times, directly or through Employer's appointed Independent Expert, observe, inspect and satisfy itself with the observance by the Company of the Key Performance Indicators.

1.4.2 In order to ensure representatively of the sample of the Buses inspected, Employer shall ensure that at least ten percent (10%) of the Buses shall be inspected each month, failing which no Performance Liquidated Damages shall be applied for that Month under the Key Performance Indicators.

1.5 Definitions

For the purposes of this Annexure:

1.5.1 **Severe Bus Defect** means a defect to a Bus affecting or potentially affecting the roadworthiness of that Bus, the safety of passengers, the collection of fares or operational control by Employer, including, but not limited to, any of the following:

(a) any Driver's Bus Defect Report (in the form attached as Exhibit 1 *(Driver's Bus Defect Report)*) for any of the last 30 (thirty) days being unavailable, incomplete or misrepresentative;

(b) any Safety Inspection Report (in the form attached as Exhibit 2 *(Safety Inspection Report)*) for any of the last 30 (thirty) days being unavailable, incomplete or misrepresentative;

(c) any item from the Safety Inspection Checklist (in the form attached in Part 1 of Exhibit 2 *(Safety Inspection Report)*)) being defective or not in full and complete working order;

(d) operations control being defective or not in full and complete working order;

(e) control management being defective or not in full and complete working order; and

(f) Buses are not maintained in accordance with manufacturer manual / recommendations.

1.5.2 **Material Bus Defect** means a defect to a Bus affecting the usage/operations of the Project, including, but not limited to, any of the following:

(a) any item from the Driver's Bus Defect Report (in the form attached as Exhibit 1 *(Driver's Bus Defect Report)*) being defective or not in full and complete working order;

(b) any destination display being defective or not in full and complete working order;

Employer's Initials

Company's Initials

(c) any passenger information display being defective or not in full and complete working order;

(d) passenger announcement system being defective or not in full and complete working order.

1.5.3 **Minor Bus Defect** means a defect to a Bus affecting the comfort of passengers, including, but not limited to, any of the following:

(a) the Bus not being in satisfactory operational condition and/or any item from the Driver's Bus Defect Report (in the form attached as Exhibit 1 *(Driver's Bus Defect Report)*) being unclean or in untidy condition;

(b) the average interior temperature as measured by Employer directly or through system being below 23°C or above 25°C when the ambient temperature is 25°C or other such temperature specified by Employer;

(c) up-to-date map (A3 size) with all stops being not displayed properly in a Bus interior;

(d) currently applicable fares being not displayed properly in a Bus interior;

(e) current passenger timetable being not displayed properly in a Bus interior;

(f) any required Employer poster/stickers being not displayed properly in a Bus interior;

(g) advertising outside of designated advertising surfaces.

1.6 Material breach

1.6.1 If, counting from the second (2nd) complete calendar month from the Commencement Date onwards:

(a) the Performance Liquidated Damages is equal to 100% for few consecutive months; or

(b) the Performance Liquidated Damages is equal to 100% for any 6 (six) months during any period of 12 (twelve) months,

then this shall constitute Company's material breach under the terms of the Agreement.

Employer's Initials

Company's Initials

EXHIBIT 1 - DRIVER'S BUS DEFECT REPORT

Driver's Name:			Date:		
Bus Reg.:					
Tachograph reading beginning of shift:			End of shift:		
Fleet / Serial no.:			Odometer Reading:		
Daily or shift check (tick or cross)					
Fuel / Oil Leaks		Wipers		Mirrors	
Battery (if Easily Accessible)		Washers		Steering	
Tyres and Wheel Fixing		Horn		Heating / Ventilation	
Brakes (incl. ABS/EBS)		Glass		Lights	
Doors and Exits		Reflectors		Body interior	
Indicators / Side Repeaters		Body Exterior		Excessive Engine Exhaust Smoke	
Fire Extinguisher		First-Aid Kit		Emergency Exit Hammer	
Seats Fixtures and Coverings		Disabled Accessibility Requirements		Registration Plates	
Floor Coverings		On-board Units		Fans or Other Air Handling Equipment	
Radios or other Communication Equipment		Passenger Information Displays		Driver's Console	
REPORT DEFECTS HERE:				Defects warranting a refusal to use the Vehicle:	
Any other issue regarding Driver's Bus defect Report:					
Defects reported to:				RECTIFIED:	
Write NIL here if no defects found				Driver's signature:	

Note: Format may be revised by Employer at its discretion to cover all defects faced during operations

Defects rectified by: .....

Signature: .....

Date: .....

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Employer's Initials

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Company's Initials

EXHIBIT 2 - SAFETY INSPECTION REPORT

Bus Reg.:	Odometer Reading:			
Make and Type:				
Date of Inspection:	ISO Wk No.:			
Company:				
(a)	**'Serviceable' (col 4)** – enter the appropriate code:			
	☐ ☐	= Satisfactory = Safety Item Defect	**R** **N/A**	= Repair Required = Not Applicable
	M	= Monitor (possible maintenance required before next SI)		

Part 1 – Inspection

Check No	Item Inspected	Serviceable	Defect Found	Rectified By
1	Driver's Seat			
2	Seat Belts and Supplementary Restraint Systems			
3	Mirrors and Indirect Vision Devices			
4	Glass and View of the Road			
5	Accessibility Features			
6	Windscreen Washers and Wipers			
7	Speedometer / Tachograph			
8	Horn			
9	Driving Controls			
10	Steering Control			
11	Service Brake Pedal			
12	Service Brake Operation			
13	Pressure / Vacuum Warning and Build Up			
14	Hand Lever Operating Mechanical Brakes			
15	Hand Operated Brake Control Valves			
16	Driver's Accommodation			
17	Interior of Body, Passenger Entrance, Exit Steps and Platforms			
18	Passenger Doors, Driver's Doors and Emergency Exits			
19	Registration Plates			

Employer's Initials

Company's Initials

20	Security of Body			
21	Exterior of Body including Luggage Compartments			
22	Exhaust Emissions			
23	Road Wheels and Hubs			
24	Size and Type of Tyres			
25	Condition of Tyres			
26	Bumper Bars			
27	Spare Wheel and Carrier			
28	Condition of Chassis			
29	Wings and Wheel Arches			
30	Bus to Trailer Coupling			
31	Speed Limiter			
32	Electrical Wiring and Equipment			
33	Engine and Transmission Mountings			
34	Oil and Waste Leaks			
35	Fuel Tanks and System			
36	Exhaust and Waste Systems			
37	Steering Mechanism			
38	Suspension			
39	Axles, Stub Axles and Wheel Bearings			
40	Transmission			
41	Additional Braking Devices			
42	Brake Systems and Components			
43	Reflectors and Rear Markings			
44	Lamps			
45	Direction Indicators and Hazard Warning Lamps			
46	Aim of Headlamps			

Employer's Initials

Company's Initials

47	Ancillary Equipment				
48	Other Dangerous Defects				
Condition of Tyres (enter N/A if not applicable)					
49	Axle 1	Axle 2			
o/s out	mm	mm			
	bar	bar			
o/s in		mm			
		psi			
n/s in		mm			
		bar			
n/s out	mm	mm			
	bar	bar			
C: Brake Performance (Laden / Unladen) (roller brake / decelerometer test)				**D: Road Test**	
Check No	**IM Ref**	**Item inspected**	**Efficiency**	**Inspector Comments:**	
50*	71	Service Brake Performance	%		
51*	72	Secondary Brake Performance	%		
52*	73	Parking Brake Performance	%		
Note: Format may be revised by Employer at its discretion to covered all defects faced during					

Employer's Initials

Company's Initials

SCHEDULE H: TERM EXPIRY CRITERIA

Term Expiry Criteria means the Company fulfilling each of the following criteria:

(a) all Company's Obligations have been completed and fulfilled as per this Agreement;

(b) all reports under this Agreement have been submitted to the Employer;

(c) the Company has paid the Liquidated Damages to the Employer in accordance with **Schedule G (Key Performance Indicators)** of this Agreement;

(d) the Company has provided all updated O&M Manuals and other operating documents to the Employer;

(e) the Company has settled and paid the Employer all amounts that are due to the Employer pursuant to the terms and conditions of this Agreement;

(f) the Covered Assets have been handed over to the Employer;

(g) the Company has performed all other O&M Services, including the Operations and Maintenance obligations, free of Defects or Deficiencies that are contemplated under this Agreement to be performed by the Company prior to expiry of the Term; and

(h) the Covered Assets are free Defects or Deficiencies.

SCHEDULE I: RELEASE CERTIFICATE

Date: .....

To,

[THE COMPANY],
[Address]

REFERENCE: RELEASE CERTIFICATE

Dear Sir/Madam,

We, ***[INSERT COMPANY NAME)*** (the **Employer**), hereby refer you, the Company to the agreement entitled "Supply, Construction, Operations and Maintenance Agreement" entered into between the Employer and the Company on [•], 202[1] (the **Agreement**).

Unless defined herein, all capitalized terms shall bear the meaning ascribed thereto in the Agreement.

Further to the written notice issued by you to the Employer dated [•], as attached hereto at Exhibit A (the **Company Request Notice**), the Employer hereby issues this Release Certificate and confirms satisfaction of the Term Expiry Criteria on [•].

IN WITNESS WHEREOF, the Employer has caused this Release Certificate to be executed by its duly authorized representative.

For and on behalf of,
[INSERT COMPANY NAME]

.....

Name: .....
Designation: .....

WITNESS I	**WITNESS II**
.....	.....
Name:	Name: .....
CNIC: .....–.....	CNIC: .....

.....
Employer's Initials

.....
Company's Initials

RELEASE CERTIFICATE - EXHIBIT A – COMPANY REQUEST NOTICE

Date: .....

To,

[*INSERT COMPANY NAME*],
[*insert address*].

REFERENCE: NOTICE TO REQUEST ISSUANCE OF RELEASE CERTIFICATE

Dear Sir/Madam,

We, the Company hereby refer you, **[●]** (the **Employer**), to the agreement entitled "Supply, Construction, Operations and Maintenance Agreement" entered into between the Employer and the Company on [●], 20[21] (the **Agreement**).

Unless defined herein, all capitalized terms shall bear the meaning ascribed thereto in the Agreement.

Pursuant to and in accordance with the terms of the Agreement, the Company hereby confirms that each of the Term Expiry Criteria has been met and satisfied.

Based on the foregoing, the Company hereby issues this notice to the Employer requesting the issuance of the Release Certificate by the Employer in accordance with the terms of the Agreement

IN WITNESS WHEREOF, the Company has caused this notice to be executed by its duly authorized representative as of the ..... day of ....., 20.....

For and on behalf of,
THE COMPANY

.....

Name: .....
Designation: .....

WITNESS I

.....
Name: .....
CNIC: .....

WITNESS II

.....
Name: .....
CNIC: .....

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Employer's Initials

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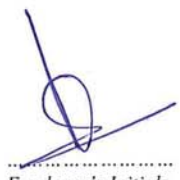
Company's Initials

SCHEDULE J: LIST OF SUB-CONTRACTORS

1. M/s. GCS
2. M/s. Gaziulas
3. M/s. Kentkart
4. M/s. Rapidev
5. M/s. Turuncu
6. M/s. Pannicle
7. M/s. PSO
8. M/s. KTS
9. M/s Stryx



Employer's Initials

Company's Initials

SCHEDULE K: INSURANCE

COMPANY'S MOBILIZATION PERIOD INSURANCES:

Within [five (5) days] of the Effective Date, and throughout the Mobilization Period of the Agreement the Company shall procure and maintain the following insurance coverage, at its own cost:

A. Inland transit insurance from Karachi Port to Bus Depot; and

B. Fire Policy for three (3) months starting from date of delivery at the Bus Depot covering terrorism, vandalism and sabotage.

C. Any insurance(s) customary to the construction sector.

COMPANY'S OPERATING PERIOD INSURANCES:

Within thirty (30) days prior to the Scheduled Commencement Date, and throughout the Operating Period of the Agreement the Company shall procure and maintain the following insurance coverage, at its own cost:

A. Workers' compensation and any other statutory insurance required by law with respect to work-related injuries or disease of employees of the Company applicable to the Company's employees in such form(s) and amount(s) as required by applicable Laws.

B. Public Liability Insurance with respect to coverage against legal liabilities to pay for death and/or bodily injury to any person and/or direct damage to the property arising due to accident.

C. Fire and Allied Perils Insurance in respect of loss or damage to Covered Assets (except Buses) against fire and lightning, riot and strike damage, atmospheric disturbance, earthquake fire and shock explosion, impact damage, aircraft damage, malicious damage.

D. Any other insurance(s) required by Law[6].

With regard to the insurance policies, the Company or the Company's insurers will endeavour to provide thirty (30) days (except ten (10) days in the event of cancellation for non-payment of premium) notice to Employer in the event of cancellation or change.

Upon the request of the Employer the Company shall deliver to the Employer certificate(s) of insurance showing that the insurance policy are in full force and effect.

EMPLOYER'S INSURANCE:

The Employer shall maintain the following insurance coverage:

A. [to be inserted]

[6] Operator's insurances listed in this Schedule K are only minimum insurance requirements required to be fulfilled by the Operator. The Operator at all times remains responsible for procuring all relevant insurances.

Employer's Initials

Company's Initials

With regard to the insurance policies, the Employer or the Employer's insurer shall provide thirty (30) days (except ten (10) days in the event of cancellation for non-payment of premium) written notice to the Company in the event of cancellation or change.

FAILURE TO MAINTAIN INSURANCE:

Failure by either Party to maintain any insurance required under this **Schedule K (*Insurances*)** shall constitute a material breach of this Agreement.

Employer's Initials

Company's Initials

SCHEDULE L: CONSENTS

[to be inserted within ten (10) days of Effective Date]

Employer's Initials

Company's Initials

SCHEDULE M: NOT USED

Employer's Initials

Company's Initials

SCHEDULE N: BENCHMARK O&M FEE

Benchmark O&M Fee – Phase I

Year*	Benchmark O&M Fee for each Operating Year
2022	584,362,240

Benchmark O&M Fee – Phase II

Year*	Benchmark O&M Fee for each Operating Year
2022	2,355,826,986
2023	2,473,618,335
2024	2,597,299,252
2025	2,727,164,214
2026	2,863,522,425
2027	3,006,698,546
2028	3,157,033,473
2029	3,314,885,147
2030	3,480,629,404
2031	3,654,660,875
2032	3,837,393,918
2033	4,029,263,614

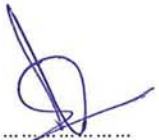
***Operating Year starting from 1st July of the last calendar year and ending on 30th June of the prevailing calendar year.**

Employer's Initials

Company's Initials

SCHEDULE O: LEASE PAYMENT

Year*	Lease Payments
2022	-
2023	-
2024	-
2025	-
2026	201,093,908
2027	211,148,603
2028	221,706,034
2029	232,791,335
2030	244,430,902
2031	256,652,447
2032	269,485,070
2033	282,959,323



Employer's Initials

Company's Initials

SCHEDULE P: RECONCILIATION MECHANISM FOR INCENTIVE PAYMENT AND O&M FEES

Incentive Payment

In any Operating Year, if the Revenue deposited by the Company in the Revenue Collection Account is more than the Benchmark O&M Fee (as specified by the Employer in Schedule N *(Benchmark O&M Fee)* for the corresponding Operating Year) then fifty percent (50%) of the differential would be payable to the Company as an Incentive Payment.

The Company shall submit an Incentive Payment Invoice and be entitled to payment in accordance with Section 8.3.1 *(Invoicing and Payment)*.

Reconciliation for O&M Fees and Incentive Payment

For the purposes of this Schedule P (*Reconciliation Mechanism for Incentive Payment and O&M Fees*) the following definitions shall apply:

6 Months Actual Revenue Amount All amounts credited to the Revenue Collection Account during the first 6 months of an Operating Year

Operating Year Actual Revenue Amount Final All amounts credited to the Revenue Collection Account during the last 6 months of an Operating Year

Revenue Amount All amounts credited to the Revenue Collection Account during an Operating Year

O&M Fee Interim All amounts of O&M Fee paid to the Company during the first 6 months of an Operating Year

O&M Fee Final All amounts of O&M Fee paid to the Company during the last 6 months of an Operating Year

O&M Fee All amounts of O&M Fee paid to the Company during an Operating Year

A. After the end of the first 6 months of an Operating Year, in case 6 Months Actual Revenue Amount exceeds the Benchmark O&M Fee (proportioned on 6 months basis), a reconciliation of the O&M Fee along with computation of Incentive Payments will be performed.

Reconciliation of the O&M Fee will be done based on the following:

Amounts attributable to the Company for the first 6 months during an Operating Year = Benchmark O&M Fee (proportioned on 6 months basis) – O&M Fee Interim.
Incentive Payment for the first 6 months during an Operating Year = (6 Months Actual Revenue Amount - Benchmark O&M Fee (proportioned on 6 months basis)) * 50%

B. After the end of the second 6 months of an Operating Year, in case Operating Year Actual Revenue Amount Final exceeds the Benchmark O&M Fee (proportioned on 6 months basis), a reconciliation of the O&M Fee along with computation of Incentive Payments will be performed.

Reconciliation of the O&M Fee will be done based on the following:

Amounts attributable to the Company for the last 6 months during an Operating Year = Benchmark O&M Fee (proportioned on 6 months basis) – O&M Fee Final.
Incentive Payment for the last 6 months during an Operating Year = (Operating Year Actual Revenue Amount Final - Benchmark O&M Fee (proportioned on 6 months basis)) * 50%

C. After the end of an Operating Year, in case Revenue Amount exceeds the Benchmark O&M Fee, a reconciliation of the O&M Fee along with computation of Incentive Payments will be performed.

Reconciliation of the O&M Fee will be done based on the following:

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Company's Initials

Amounts attributable to the Company = (Benchmark O&M Fee – O&M Fee) - Amounts attributable to the Company for first 6 months during an Operating Year - Amounts attributable to the Company for the last 6 months During an Operating Year.

Incentive Payment = ((Revenue Amount - Benchmark O&M Fee) * 50%) - Incentive Payment for first 6 months during an Operating Year - Incentive Payment for the last 6 months During an Operating Year.

If amounts attributable to the Company and Incentive Payment as per the formula above results in negative numbers, same amount shall be recovered by the Employer from the subsequent invoice of the O&M Fee of the upcoming Operating Year's first quarter.

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SCHEDULE Q: LOSS OF REVENUE

Loss of Revenue

In any Operating Year, if Loss of Revenue is payable then the same shall be calculated as follows:

Loss of Revenue ***(for the first Operating Year)*** = 60% of Benchmark O&M Fee (as specified by the Employer in Schedule N *(Benchmark O&M Fee)* as fixed portion *plus* 40% of Benchmark O&M Fee (as specified by the Employer in Schedule N *(Benchmark O&M Fee)*) as variable portion *less* Lease Payment (as specified by the Employer in Schedule O *(Lease Payment)* for the first Operating Year).

Loss of Revenue ***(for any Operating Year after the first Operating Year)*** = 60% of the average actual revenue collected during the last twelve (12) months adjusted for fare inflation rate as fixed portion *plus* 40% of the average actual revenue collected during the last twelve (12) months adjusted for fare inflation rate as variable portion *less* Lease Payment (as specified by the Employer in Schedule O *(Lease Payment)* for the relevant Operating Year).

Determination of Loss of Revenue would be computed by the Independent Expert based on claims raised by the Company w.r.t non-operationalization/ compromised operationalization of Buses due to events attributable to the Employer.

The Company shall submit an invoice for the Loss of Revenue and shall be entitled to payment within forty-five (45) days of determination and certification of the same by the Independent Expert.

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SCHEDULE R: PAYMENT SCHEDULE

TERMS OF PAYMENTS	PAYMENT MILESTONES FOR SUPPLY COST 50 BUSES DURING PHASE I
Advance Payment	▪ Fifty (50) percent of the Supply Cost payable within ten (10) days of opening of the Letter of Credit provided the Company has delivered the Advance Payment Security.
Interim Payment 1	▪ **On Shipment from Country of Origin:** 35% of the Supply Cost for 50 buses with respect to Phase I – on shipped/cargo from the country of origin of the Goods.
Interim Payment 2	▪ **On delivery at the Delivery Point in Karachi:** 10.0% of the Supply Cost for 50 buses with respect to Phase I – on delivery to the Delivery Point (Karachi, Pakistan).
Interim Payment 3	▪ **On Issuance of Certificate of Compliance for the Batch of Goods Phase I:** 5.0% of the Supply Cost for 50 buses with respect to Phase I – on issuance of Certificate of Compliance for Batch of Goods Phase I.

TERMS OF PAYMENTS	PAYMENT MILESTONES FOR SUPPLY COST 200 BUSES DURING PHASE II
Interim Payment 1	▪ **On Shipment from Country of Origin:** 35.0% of the Supply Cost for 200 buses with respect to Phase II – on shipped/cargo from the country of origin of the Goods.
Interim Payment 2	▪ **On delivery at the Delivery Point in Karachi:** 10.0% of the Supply Cost for 200 buses with respect to Phase II – on delivery to the Delivery Point (Karachi, Pakistan).
Interim Payment 3	▪ **On Issuance of Certificate of Compliance for the Batch of Goods Phase II:** 5.0% of the Supply Cost for 200 buses with respect to Phase II – on issuance of Certificate of Compliance for Batch of Goods Phase II.

Interim Payment for every milestone will be computed as per the following mechanism:

Interim Payment = (Percentage (50 buses and/or 200 buses) * (Supply Cost or Supply Cost for 50 buses and/or Supply Cost for 200 buses) * Base Exchange Rate) + Adjustment

Supply Cost USD 38.5 million

Supply Cost for 50 buses USD 7.7 million

Supply Cost for 200 buses USD 30.8 million

Prevailing Exchange Rate USD PKR exchange rate notified by State Bank of Pakistan (SBP) at the time of payment

Base Exchange Rate USD PKR [•] exchange rate notified by State Bank of Pakistan (SBP) at the time of signing of the Agreement

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Adjustment will be based on the following:

- If at the time of payment, Prevailing Exchange Rate is more than the Base Exchange Rate but less than [1.02] times of the Base Exchange Rate, zero amount;
- If at the time of payment, Prevailing Exchange Rate is more than [1.02] times of the Base Exchange Rate, (Prevailing Exchange Rate - [1.02] times of the Base Exchange Rate) * Percentage (50 buses and/or 200 buses) * (Supply Cost or Supply Cost for 50 buses and/or Supply Cost for 200 buses);
- If at the time of payment, Prevailing Exchange Rate Is less than the Base Exchange Rate but more than [0.98] times of the Base Exchange Rate, zero amount;
- If at the time of payment, Prevailing Exchange Rate is less than [0.98] times of the Base Exchange Rate, (Prevailing Exchange Rate - [0.98] times of the Base Exchange Rate) * Percentage (50 buses and/or 200 buses) * (Supply Cost or Supply Cost for 50 buses and/or Supply Cost for 200 buses);

Employer's Initials

Contractor's Initials

SCHEDULE S: STANDING INSTRUCTIONS

[ON THE LETTERHEAD OF THE EMPLOYER]

DATE: [●]

REFERENCE: [●]

TO,

[INSERT TITLE]
[INSERT NAME OF BANK]
[INSERT BRANCH]
[INSERT ADDRESS]
PAKISTAN,

RE: STANDING INSTRUCTIONS IN RESPECT OF REVENUE COLLECTION ACCOUNT

Dear Sir/Madam,

1. ISSUANCE OF STANDING INSTRUCTIONS NOTICE

We, **SINDH MASS TRANSIT AUTHORITY,** (through _____) (the **EMPLOYER**) refer you, [INSERT BANK NAME] (a banking company established under the laws of Pakistan having its registered office located at [●]) (the **Account Bank**) to the following bank account established and maintained in the name of the Employer at the Account Bank's branch located at [●]:

Account Number [●], Account Title [●] (the **Revenue Collection Account**);

We, the Employer, hereby issue this notice (the **Standing Instructions Notice**) containing the Standing Instructions (as defined below) for the maintenance and operation of the Revenue Collection Account and for matters relating to the same.

2. DEFINITIONS

In this Standing Instructions Notice, the following capitalized words shall bear the meaning ascribed to the same as below:

(a) **Account Bank** shall bear the meaning ascribed thereto in Paragraph 1;

(b) **Agreement** means the agreement entitled 'Supply, Construction, Operations and Maintenance Agreement' dated [●], 2021 and entered into between Employer and the Company in relation to the Project;

(c) **Company** means [●];

(d) **Company Payment Account** means the account established by the Company with the Company Payment Account Bank bearing the Account [●], bearing the Account Title '[●];

(e) **Company Payment Account Bank** means [●], corporate centre branch located at [●], Pakistan;

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(f) **Employer** means the SINDH MASS TRANSIT AUTHORITY, a statutory body constituted pursuant to Section 4 of the SMTA Act with its office located at [●], Pakistan;

(g) **Incentive Payment** means the amount payable to the Company as set out in the Independent Expert Certificate;

(h) **Incentive Payment Invoice** means the invoice issued by the Company to the Employer for the payment of the Incentive Payment, annexed to the Independent Expert Certificate;

(i) **Independent Expert Certificate** means the certificate(s) to be issued by the Independent Expert, from time to time, to the Account Bank setting out, in respect of the O&M Fees and/or the Incentive Payment, the Payment Date and the Payable Amount along with the Company's Invoice and/or the Incentive Payment Invoice, annexed thereto;

(j) **Invoice** means the invoice issued by the Company to the Employer for the payment of the O&M Fees, annexed to the Independent Expert Certificate;

(k) **O&M Fees** means the fees payable to the Company by the Employer, in consideration of the services provided by the Company in terms of the Agreement;

(l) **Payable Amount** means the amount due and payable to the Company as set out in the Independent Expert Certificate;

(m) **Payment Date** means the due date for payment of the Payable Amount as set out in the Independent Expert Certificate;

(n) **Project** means the Sindh Intra-District Peoples Bus Service Project for Karachi, Hyderabad, Sukkur, Larkhana, Mirpurkhas & SBA;

(o) **Revenue Collection Account** shall bear the meaning ascribed thereto in Paragraph 1;

(p) **SMTA Act** means the Sindh Mass Transit Authority Act, 2014 (as may be amended, modified, supplemented, extended or re-enacted from time to time);

(q) **Standing Instructions** means the legally binding, enforceable and irrevocable (subject to Paragraph 5.1 and Paragraph 5.3 below) standing instructions contained in this Standing Instructions Notice for the operation and maintenance of the Revenue Collection Account;

(r) **Standing Instructions Notice** shall bear the meaning ascribed thereto in Paragraph 1.

3. INTERPRETATION

3.1 In this Standing Instructions Notice:

(a) Words importing the singular shall include the plural or vice versa.

(b) Save where the contrary is indicated, any reference to:

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(i) a Paragraph or an Annexure shall be construed as a reference to a paragraph or an annexure of this Standing Instructions Notice;

(ii) any instrument, memorandum, agreement, contract or document shall be construed as a reference to that instrument, memorandum, agreement, contract or document (together with any recitals or sections thereto) all as amended, varied, restated, novated or supplemented from time to time;

(iii) any person shall be construed so as to include their respective administrators, successors in interest and permitted assigns from time to time;

(iv) a statute, enactment or order shall be construed as a reference to such statute, enactment or order as the same may have been, or may from time to time be, amended or re-enacted and all subsidiary legislation and other instrument made under or deriving validity therefrom;

(v) the words 'including' and 'includes' and any grammatical variants of those words, will be read as if followed by the words 'without limitation;'

(vi) a reference to a person shall be construed to include a juridical person; and

(vii) a time of day shall be construed as a reference to Pakistan Standard Time.

(c) Headings are for ease of reference only and shall be ignored in construing this Standing Instructions Notice.

(d) The Annexures (if any) appended to this Standing Instructions Notice shall form an integral part of this Standing Instructions Notice.

4. THE INSTRUCTIONS IN RESPECT OF MATTERS RELATING TO THE REVENUE COLLECTION ACCOUNT

4.1 The Employer hereby instructs the Account Bank to debit the Revenue Collection Account on each Payment Date (upon receipt of Independent Expert Certificate relating to such Payment Date) in an amount equal to the relevant Payable Amount and credit the same to the Company Payment Account.

5. REVOCATION AND AMENDMENT OF STANDING INSTRUCTIONS

5.1 The Standing Instructions (or any part thereof) in respect of the Revenue Collection Account, issued by the Employer may be revoked:

(a) pursuant to a written revocation notice duly executed and confirmed by the authorized representatives of the Employer and the Company; or

(b) occurrence of any circumstances which entitle the Employer to termination under Section 11.2 *(Termination for Company's Default)* of the Agreement, irrespective of whether notice of termination has been given,

in each case acknowledged by the Account Bank.

5.2 The Revenue Collection Account shall be strictly operated and maintained in accordance with the Standing Instructions.

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5.3 The Standing Instructions may be amended at any time pursuant to a written notice issued by the Employer to the Account Bank instructing amendment of the Standing Instructions (or any part thereof) and the same shall be confirmed and acknowledged by the Account Bank, provided, that such notice shall be only effective if the same is also duly signed by the authorized representatives of the Employer and the Company.

6. SEVERABILITY

6.1 If for any reason whatsoever any provision of this Standing Instruction Notice is or becomes invalid, illegal or unenforceable or is declared by any court of competent jurisdiction or any other instrumentality to be invalid, illegal or unenforceable, the validity, legality or enforceability of the remaining provisions shall not be affected in any manner, and the Account Bank and the Employer, will negotiate in good faith with a view to agreeing upon one or more provisions which may be substituted for such invalid, unenforceable or illegal provisions, as nearly as is practicable.

7. GOVERNING LAW & DISPUTE RESOLUTION

7.1 This Standing Instructions Notice shall be governed by and construed in accordance with the laws of Pakistan and the courts of law at Karachi, Pakistan with competent jurisdiction shall entertain all disputes arising hereunder.

FOR AND ON BEHALF OF

THE EMPLOYER

.....

NAME:

DESIGNATION:

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Employer's Initials

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Company's Initials

ACKNOWLEDGMENT AND CONSENT NOTICE

We, the Account Bank, hereby undertake the following:

1. we have received the Standing Instructions Notice issued by the Employer and we hereby acknowledge the receipt of the same;

2. we have reviewed and understand all the provisions, terms and conditions as stipulated in the Standing Instructions Notice;

3. by signing this acknowledgement and consent notice, we hereby confirm our acceptance to all the instructions as stipulated in the Standing Instructions Notice and all the terms and conditions stated therein; and

4. we shall act in accordance with the instructions of the Employer, as stipulated in the Standing Instructions Notice, subject to the same being in conformity with applicable laws (including the State Bank of Pakistan circulars, notifications and directions issued, from time to time).

By confirming, signing and delivery of this acknowledgment and consent notice to the Employer, certified true copies of the same are also being sent to the Company.

This acknowledgement and consent notice is being signed by a duly authorised representative of the Account Bank.

FOR AND ON BEHALF OF

THE ACCOUNT BANK

.....

NAME:

DESIGNATION:

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Employer's Initials

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Company's Initials

SCHEDULE T: SCHEDULE OF DELIVERY

SUPPLY OBLIGATIONS				
Supply and Maintenance Supervision of 12 m & 8.5 m Buses for Sindh Intra District Peoples Bus Service Project				
Item No.	**Name of Supply Obligations**	**Description**	**Unit of Measurement**	**Quantity**
List of Buses and Spare Parts				
1	Supply of 12-meter Non-Articulated Buses[7]	Refer to Schedule A *(Company's Scope of Work and Employer's Requirements)* for detail description	No.	150
	Supply of 8.5-meter Non-Articulated Buses			100
2	Supply of full Spare Parts package for 12 m & 8.5 m Buses from the delivery of the first bus through the duration of the Contract		Lump sum	1
3	Supply of tools and diagnostic equipment for 12 m & 8.5 m Buses		No.	1
List of Services as part of Supply Obligations				
5	Maintenance supervision of 12 m & 8.5 m Buses	Refer to Schedule A *(Company's Scope of Work and Employer's Requiremen)* for detail description	Month	12
6	Maintenance training program		Lump sum	1
7	Driver training program		Lump sum	1
8	Completion of full vehicle homologation, registration and licensing for 12 m & 8.5 m Buses		Lump sum	1
9	Cost of Inland Transport and associated insurance for supply of 12 m & 8.5 m Buses Delivery Points at respective depots	Section 7.21 *(Insurance)* and Schedule K *(Insurance)*	Lump sum	1

[7] The "Supply of 12 m & 8.5 m Buses" fully encompasses the following components: i) Supply of Buses in the quantity specified; ii) Provision of warranty for 12 m & 8.5 m Buses, 12 m & 8.5 m Buses Spare Parts and components for a period of 12 months from the acceptance of final tranche of Buses and Bus Spare Parts whereas warranty for Bus Batteries i.e., battery packs and electric motors shall be for 9-years or 1 million kilometres of service, whichever milestone occurs first.

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Delivery and Completion Schedule

The delivery period shall start from the issuance of 12 m & 8.5 m Buses Effective Date.

Item No.	Description of 12 m & 8.5 m Buses - Supply Obligations	Delivery Schedule (Duration)	Location	Required Delivery Date of 12 m & 8.5 m Buses & Spare Parts or Completion Date for other Supply Obligations
		SUPPLY OF 12 M & 8.5 M BUSES		
1.	Supply & Warranty of 12 m & 8.5 m Buses	i. Submission of Concept Bus Design for 12 m Bus: Within 7 days from the Effective Date ii. Approval of Concept Bus Design for 12 m Bus: Within 7 days from the submission of Concept Bus Design iii. Submission of Detailed Bus Design for 12 m Bus: Within 7 days from the Approved Concept Bus Design iv. Approval of Detailed Bus Design for 12 m Bus: Within 7 days from the submission of Detailed Bus Design v. Production and testing of first full unit at factory for 12 m Bus (prototype bus): Within 28 days from the Approved Detailed Bus Design vi. Final detailed Bus Design for 12m Bus: Within seven (7) days from the issuance of Prototype Test Acceptance Certificate vii. Approval of Final Bus Design for 12m Bus: Within seven (7) days from submission of Final Bus Design viii. Production & Delivery of Phase-I Buses at Karachi Port comprising of 50 Nos, 12-meter buses: Within 42 days from the Approved Final Bus Design ix. Production & Delivery of Phase-II Buses at Karachi Port comprising	Karachi Sindh, Pakistan	▪ Phase – I: Delivery of first 50 units of 12 m buses within Three and a half (3.5) months from the Effective Date ▪ Phase – II: Delivery of 100 units of 12 m buses within Five and a half (5.5) months from the Effective Date

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Item No.	Description of 12 m & 8.5 m Buses - Supply Obligations	Delivery Schedule (Duration)	Location	Required Delivery Date of 12 m & 8.5 m Buses & Spare Parts or Completion Date for other Supply Obligations
		of 100 Nos, 12-meter buses: Within 91 days from the Approved Final Bus Design		
		i. Submission of Concept Bus Design for 8.5 m Bus: Within 14 days from the Effective Date ii. Approval of Concept Bus Design for 8.5 m Bus: Within 7 days from the submission of Concept Bus Design iii. Submission of Detailed Bus Design for 8.5 m Bus: Within 7 days from the Approved Concept Bus Design iv. Approval of Detailed Bus Design for 8.5 m Bus: Within 7 days from the submission of Detailed Bus Design v. Production and testing of first full unit at factory for 8.5 m Bus (prototype bus): Within 28 days from the Approved Detailed Bus Design vi. Final detailed Bus Design for 8.5m Bus: Within seven (7) days from the issuance of Prototype Test Acceptance Certificate vii. Approval of Final Bus Design for 8.5m Bus: Within seven (7) days from submission of Final Bus Design viii. Production & Delivery of Phase-II Buses at Karachi Port comprising of 100 Nos, 8.5-meter buses: Within 91 days from the Approved Final Bus Design	Karachi & Larkana, Sindh, Pakistan	▪ Phase – II: Delivery of 100 units of 8.5 m buses within Five and a half (5.5) months from the Effective Date
		i. Warranty for the 12 m & 8.5 m Buses, Spare Parts and components	Karachi & Larkana,	▪ Warranty effective from the 12 m & 8.5 m Buses

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Item No.	Description of 12 m & 8.5 m Buses - Supply Obligations	Delivery Schedule (Duration)	Location	Required Delivery Date of 12 m & 8.5 m Buses & Spare Parts or Completion Date for other Supply Obligations
		(excluding Bus Batteries i.e., battery packs and electric motors) over a period of twelve (12) months from the delivery of the 12 m & 8.5 m Buses and Spare Parts whereas warranty for Batteries i.e., battery packs and electric motors shall be for 9-years or 1 million kilometers of service, whichever milestone occurs first.	Sindh, Pakistan	Delivery Date (including issuance of the 12 m & 8.5 m Buses Certificate of Compliance) for each Bus for a period of twelve (12) months (subject to any extensions thereof) in accordance with Section 12 *(Warranty)* of the Agreement. ▪ Warranty for 12 m & 8.5 m Buses Bus Batteries shall be effective from the 12 m & 8.5 m Buses Delivery Date (including issuance of the Certificate of Compliance) for each Bus through the Bus's 9 years life or 1 million kilometers of service, whichever milestone occurs first.
2.	Supply of full 12 m & 8.5 m Buses Spare Parts package for Buses from the delivery of the first Bus through the duration of the Agreement	Spare parts delivered in a timely manner to ensure availability during the Initial Maintenance Period (following which Company shall continue to liable to procure all Spare Parts in accordance with the Agreement)	Karachi & Larkana, Sindh, Pakistan	Sufficient 12 m & 8.5 m Buses Spare Parts available from the date of delivery of Buses for a period of twelve (12) months warranty in accordance with Section 12 *(Warranty)* of the Agreement.
3.	Supply of tools and diagnostic equipment for each depot for 12 m & 8.5 m Buses	Maintenance tools	Karachi & Larkana, Sindh, Pakistan	Maintenance tools delivered from the date of the first Bus delivery
List of Services				

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Employer's Initials

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Company's Initials

Item No.	Description of 12 m & 8.5 m Buses - Supply Obligations	Delivery Schedule (Duration)	Location	Required Delivery Date of 12 m & 8.5 m Buses & Spare Parts or Completion Date for other Supply Obligations
4.	Maintenance supervision of 12 m & 8.5 m Buses		Karachi & Larkana, Sindh, Pakistan	Maintenance Supervision provided for period of twelve (12) months from the date of delivery of the last 12 m & 8.5 m Bus.
5.	Maintenance training program		Karachi & Larkana, Sindh, Pakistan	Initial maintenance training program shall be completed within maximum of six (06) months from Effective Date. Final maintenance training program shall be completed one (1) month prior to expiry of the Initial Maintenance Period.
7.	Driver training program		Karachi & Larkana, Sindh, Pakistan	Driver training program shall commence within four (04) months after Effective Date. Driver training program shall be completed within two (02) months after commencement of the same.
8.	Completion of full vehicle homologation, registration and licensing for 12 m & 8.5 m Buses	Homologation, registration, and licensing of each 12 m & 8.5 m Buses to be completed at time of Bus delivery	Karachi & Larkana, Sindh, Pakistan	Full homologation, registration, and licensing of each 12 m & 8.5 m Bus to be completed within thirty (30) days' time of Bus delivery
9.	Cost of Inland Transport and associated insurance for supply of 12 m & 8.5 m Buses at Depot Delivery Point		Karachi & Larkana, Sindh, Pakistan	

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Employer's Initials

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Company's Initials

SCHEDULE U: TERMINATION PAYMENT

FOR TERMINATION PRIOR TO COMMENCEMENT DATE

Termination Payment = Benchmark O&M Fee (for Year 2022 as specifed in Schedule N) + (Benchmark O&M Fee (for Year 2022 as specifed in Schedule N) * 84% - Interim Payments already paid) + Bus Depot Cost

Where:

Bus Depot Cost is the cost as assesed by the Independent Expert.

FOR TERMINATION AFTER COMMENCEMENT DATE

Termination Payment = A+B+C+D

Component A = Sum equivalent to the following percentage of the Benchmark O&M Fee for the Operating Year in which termination occurs:

Year*	Percentage of Benchmark O&M Fee for the respective Operating Year
2022	84%
2023	73%
2024	63%
2025	53%
2026	44%
2027	36%
2028	29%
2029	22%
2030	16%
2031	10%
2032	5%
2033	0%

Component B = USD 38.5 million - Supply Cost *(Denominated in USD)* + ((USD 38.5 million - Supply Cost *(Denominated in USD)*) * 20% * 2)

Component B is payable only where Supply Cost is lower than USD 38.5 million.

For the calculation of Component B the amount *USD 38.5 million - Supply Cost (Denominated in USD)* would be reduced proportionately based on the number of Operating Years including the Operating Year in which termination occurs. Note that the amount of *USD 38.5 million - Supply Cost (Denominated in USD)* in the last Operating Year would be considered as 0.

Component C = Bus Depot Cost + (Bus Depot Cost * 20% * 2)

Where:

Bus Depot Cost is the cost as assesed by the Independent Expert for the Operating Year in which termination occurs.

For calcuation, note that the Bus Depot Cost would be reduced proportionately based on the number of Operating Years before the termination date. Please note that the amount of Bus Depot Cost in the last Operating Year would be considered as 0.

Component D = All Lease Payment paid by the Company to the Employer till date.

Employer's Initials

Company's Initials

SCHEDULE V: FUEL PRICE INDEXATION

A. In case the Actual Fuel Price, during an Operating Year, is higher than 1.05 times of Base Fuel Price, the Employer shall pay the Fuel Adjustment to the Company in accordance with the following:

This adjustment will be done on monthly basis.

For an Operating Year:

Fuel Adjustment =

$$((Benchmark\ O\&M\ Fee * Fuel\ Percentage\ Allocation) * 1/12 * \frac{Actual\ Fuel\ Price}{PKR\ 122/liter * 1.05}) - Benchmark\ O\&M\ Fee * Fuel\ Percentage\ Allocation * 1/12$$

Benchmark O&M Fee: *Benchmark O&M Fee Phase I* ***and/or*** *Benchmark O&M Fee Phase II*

(Please note Benchmark O&M Fees Phase II will be used in the above calculation once all buses i.e., 250 are operational in accordance with the Agreement.)

Fuel Percentage Allocation: *Fuel Percentage Allocation Phase I* ***and/or*** *Fuel Percentage Allocation Phase*

(Please note Benchmark O&M Fees Phase II will be used in the above calculation once all buses i.e., 250 are operational in accordance with the Agreement.)

In case all 250 buses are operationalized in the middle of a month, Benchmark O&M Fee and Fuel Percentage Allocation will be proportioned w.r.t number of days, within a month, between Benchmark O&M Fee Phase I and Benchmark O&M Fee Phase II and Fuel Percentage Allocation Phase I and Fuel Percentage Allocation Phase II.

Actual Fuel Price: Weighted average of the fuel price in a month, in PKR/litre, which shall be calculated as follows:

$$\frac{(Fuel\ Price\ for\ x\ number\ of\ days * x\ days) + (Fuel\ Price\ for\ n - x\ number\ of\ days * n - x\ days)}{x\ days + n - x\ days}$$

- *n = total number of days in a month*
- *Fuel Price = Price of High-Speed Diesel (HSD) as notified by Pakistan State Oil (PSO) Where frequency of change in fuel price (x days) depends on the change of HSD price as per PSO*

The adjustment will be paid within fifteen (15) days from the end of a Month of an Operating Year.

After the end of an Operating Year, in case the actual O&M Fee calculated is lower than the Benchmark O&M Fee, a final adjustment amount will be calculated based on the actual O&M Fee and will be adjusted from the subsequent O&M Fee payable to the Company. Such adjustment will be split on equal basis for the upcoming 3 months.

After the end of an Operating Year, in case the actual O&M Fee is higher than the Benchmark O&M Fee, a final adjustment amount will be calculated based on the Incentive Payment Amount attributable to the Company and will be paid to the Company within 30 days from the end of an Operating Year.

Employer's Initials

Company's Initials

B. In case the Actual Fuel Price, during an Operating Year, is lower than 1.05 times of Base Fuel Price, the Company shall pay the Fuel Adjustment to the Employer in accordance with the following:

This adjustment will be done on monthly basis.

For an Operating Year:

Fuel Adjustment =

$$(Benchmark\ O\&M\ Fee * Fuel\ Percentage\ Allocation * 1/12) - (Benchmark\ O\&M\ Fee * Fuel\ Percentage\ Allocation * 1/12 * \frac{Actual\ Fuel\ Price}{PKR\ 122/liter * 1.05})$$

Benchmark O&M Fee: *Benchmark O&M Fee Phase I* ***and /or*** *Benchmark O&M Fee Phase II.*

(Please note Benchmark O&M Fees Phase II will be used in the above calculation once all buses i.e., 250 are operational in accordance with the Agreement.)

Fuel Percentage Allocation: *Fuel Percentage Allocation Phase I* ***and/or*** *Fuel Percentage Allocation Phase II.*

(Please note Benchmark O&M Fees Phase II will be used in the above calculation once all buses i.e., 250 are operational in accordance with the Agreement.)

In case all 250 buses are operationalized in the middle of a month, Benchmark O&M Fee and Fuel Percentage Allocation will be proportioned w.r.t number of days, within a month, between Benchmark O&M Fee Phase I and Benchmark O&M Fee Phase II and Fuel Percentage Allocation Phase I and Fuel Percentage Allocation Phase II.

Actual Fuel Price: Weighted average of the fuel price in a month, in PKR/litre, which shall be calculated as follows:

$$\frac{(Fuel\ Price\ for\ x\ number\ of\ days * x\ days) + (Fuel\ Price\ for\ n - x\ number\ of\ days * n - x\ days)}{x\ days + n - x\ days}$$

- *n = total number of days in a month*
- *Fuel Price = Price of High-Speed Diesel (HSD) as notified by Pakistan State Oil (PSO)*
  Where frequency of change in fuel price (x days) depends on the change of HSD price as per PSO

The adjustment will be deducted from the O&M Fee of the upcoming month.

After the end of an Operating Year, in case the actual O&M Fee is lower than the Benchmark O&M Fee, a final adjustment amount will be calculated based on the actual O&M Fee and will be paid to the Company within thirty (30) days from the end of an Operating Year.

After the end of an Operating Year, in case the actual O&M Fee is higher than the Benchmark O&M Fee, a final adjustment amount will be calculated based on the Incentive Payment Amount attributable to the Company and will be adjusted from the subsequent O&M Fee payable to the Company. Such adjustment will be split on equal basis for the upcoming 3 months.

Fuel Percentage Allocation – Phase I

Year*	Fuel Percentage Allocation – Phase I
2022	24%

Employer's Initials

Company's Initials

Fuel Percentage Allocation – Phase II

Year*	Fuel Percentage Allocation – Phase II
2022	35%
2023	33%
2024	32%
2025	30%
2026	29%
2027	27%
2028	26%
2029	25%
2030	24%
2031	22%
2032	21%
2033	20%

*Operating Year starting from 1st July of the last calendar year and ending on 30th June of the prevailing calendar year.

Employer's Initials

Company's Initials